



# BADGER STATE Smoke Signals



For Radio Amateurs • By Radio Amateurs

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## WAR Meets in Baraboo



The Wisconsin Association of Repeaters is the repeater coordination organization for Wisconsin. It holds quarterly meetings; on June 11, it met in Baraboo. Above, left to right, are: Vice-Chairman Virgil Burmeister, WB9MHS, Greenleaf; Treasurer Dennis

Krueger, N9AOZ, Berlin; Frequency Coordinator Nels Harvey, WA9JOB, Milwaukee; WAR Newsletter Editor Dave Knaus, WA9POV, Milwaukee, and Chairman George Loudon, N9CCI, Omro. Not present was Secretary Ron Shimek, WB9MFB, Manitowoc.

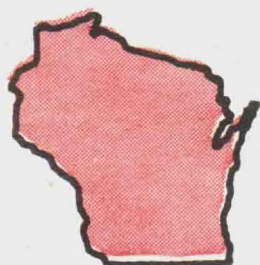
## 87-14 Update

Calling the UPS proposal "seriously flawed," the Department of Defense (DoD) together with the National Communications System (NCS) has filed reply comments strongly supporting Amateur Radio in response to the late filed UPS comments in Docket 87-14. These important comments should greatly aid the amateur community in our fight to retain the threatened bottom two Megahertz of the 220 band.

In its comments, DoD/NCS said it was currently conducting "several sensitive research efforts that show the imperative need to continue Radiolocation as a primary service in the 216-25 MHz band." These research efforts involve certain advanced forms of radar. DoD/NCS noted that the amateur community and the radiolocation operations of DoD have successfully shared the 220-222 MHz segment for many years and the UPS proposal would "preclude the shared use of these frequencies by radiolocation, forcing the two users to attempt to find other suitable frequencies."

".... the Amateur Radio Service has a variety of critical operations at 220-222 MHz, including fixed, auxiliary and control links for repeaters, beacons, weak-signal propagation, research and experimentation and, most recently, an increasing number of high-speed data

(Please turn to page 10)



## Official Results

1988

## Wisconsin QSO Party


Sponsored by the West Allis Radio Amateur Club

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**BADGER STATE  
Smoke Signals**  
For Radio Amateurs • By Radio Amateurs

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1 year	(12 issues)	\$8.50
2 years	(24 issues)	\$16.00
3 years	(36 issues)	\$23.00

ADDRESS CHANGES AND CORRECTIONS should be sent to Kenneth A. Ebnetter, address above.

EDITORIAL MATERIAL, PHOTOGRAPHS, FEATURE ARTICLES, AND EXCHANGE PAPERS should be sent to Jim Romelfanger, address above.

DISPLAY ADS OR INQUIRIES REGARDING DISPLAY ADS should be directed to Harry Westlund, address above.

SUBSCRIPTIONS should be sent, with check or money order (do not send cash), to Jim Decker, address above.

Permission is hereby granted to reprint items from BSSS, providing credit is given to the original author, publication in which the item first appeared, and to Badger State Smoke Signals. This paper is mailed from Portage WI 53901. This paper is produced by Amateurs for Amateurs. It is all volunteer and non-profit.

**EDITORIAL DISCLAIMER**

The opinions expressed in editorials, guest editorials, columns, articles, and letters are the opinions of the authors only, and do not, unless otherwise stated, express or imply agreement or endorsement by Badger State Smoke Signals, or any other organization.

## Swapfests and other Social Events

SATURDAY, JULY 9, 1988. Swapfest "88". American Legion Post 434, Oak Creek, WI. Sponsored by the South Milwaukee ARC. Buy, Sell, Swap. Starts at 7:00 a.m. Happy Time with free beer and free soda. Food, Drinks, and Camping available. Amateur Radio Examinations given (see Testpoint). Tickets: \$3.00. See June BSSS for ad with more details and map from this Badger State Poster.

SATURDAY, JULY 9, 1988. Annual Eau Claire Hamfest. At the 4H barns on Fairfax, behind Highland Mall. Free tables, free coffee, good food, commercial exhibitors, Amateur license test given (see Testpoint). Admission \$2.00 in advance, or \$3.00 at the door. Write to: Gene

Lieberg, 2840 Saturn Ave., Eau Claire, WI 54707. See BSSS for Ad with more details.

SUNDAY, JULY 10, 1988. Du Page ARC Hamfest, American Legion Grounds, 4000 Saratoga, Downers Grove, IL. DuPage ARC, P.O. Box 71, Clarendon Hills, IL 60514.

JULY 23 & 24, 1988. ACLR/DEVRY Hamfest, at DeVry Institute, 3300 N. Campbell, Chicago, IL. Contact: A.C.L.R. P.O. Box 348257, Chicago, IL 60634.

EAA SHOW JULY 29 THRU AUGUST 5. Oshkosh, WI. Be sure to visit the Ham Shack.

SATURDAY, AUGUST 13, 1988. The 9th Annual Rhinelander Swapfest will be held at the Gigantic Rhinelander Ice Arena, in Rhinelander, WI. Set up begins at 8 a.m. with sales starting at 9 a.m. Free Parking. Food and beverages will be available. License exams given in the morning only. An auction will be held at 1 p.m. Reserve tables (\$5.00) available until July 30, or bring your own tables. Dealer Welcome. Contact: Leonard Bauman, K9RMN, 1312 Dorothy St., Rhinelander WI 54501. Telephone (608) 369-3296. See their ad in this issue BSSS.

SATURDAY, AUGUST 13, 1988. The Green Bay Mike and Key Club's Summer Swapfest, will be held at the Community Service Center, 1673 Dousman St., Green Bay, WI. Doors open at 7 a.m. with sellers allowed in at 6 a.m. Free parking, Amateur Radio Exams (see Testpoint). Admission \$1.00. 8 ft. tables \$5.00, by reservation only. Send SASE with payment to Green Bay Mike and Key Club, Inc., c/o Cathy Strommen, KD9WD, Rte., Box 316A, Greenleaf, WI 54126.

As a service to our readers, this section of Badger State Smoke Signals is available without charge to list your upcoming Swapfest, Hamfest, dinner, picnic, party or other event of interest to Radio Amateurs in Wisconsin and nearby areas.

Send information on your event to Kenneth A. Ebnetter, K9EN, 822 Wauona Trail, Portage, WI 53901. In addition, space is available at attractive rates on our advertising pages. For information on rates and requirements for our advertising pages, please contact K9ZZ or K9EN.

## Club Meetings

**BADGER AMATEUR RADIO SOCIETY**  
(W9YT - UNIVERSITY OF WISCONSIN - MADISON)  
Monthly while school in session - 2nd Wednesday - 7:30 p.m. - B-314, Electrical Engineering Building.

**CENTRAL WISCONSIN RADIO AMATEURS, LTD.**  
(STEVENS POINT)  
Second Wednesday.

**Eau Claire Amateur Radio Club**  
2nd Tuesday - 7:30 p.m. - Parks and Recreation Bldg., Oxford and 1st Streets, Eau Claire. Hams, guests welcome. Travelers welcome on wide area club repeater K9UXP, 146.31/91.

**FOUR LAKES AMATEUR RADIO CLUB (MADISON WI)**  
First and third Tuesdays - 7:30 p.m. - Red Cross Bldg., 4860 Sheboygan Ave.

**FOX CITIES AMATEUR RADIO CLUB**  
Third Monday - 7:00 p.m. - Roosevelt Jr. High School, 318 E. Brewster St., Appleton. Info: (414) 735-6294. Winter Banquet, January 23, 1988. Contact KA9MPP.

**GREEN BAY MIKE AND KEY CLUB**  
Second Thursday - Red Cross Bldg., corner Danz and Deckner, Green Bay.

**GREEN FOX AMATEUR RADIO CLUB**  
Third Monday - 7:30 p.m. - Green Lake Town Hall, int. of county hwy. K and N.

**KETTLE MORAINÉ RADIO AMATEURS**  
Second Friday.

**LAKE SHORE RPTR. ASSN.**  
4th Tuesday, Jan., Apr., Jul., & Oct., 7:30 p.m. Red Cross Bldg., 4521 Taylor Ave., Racine, WI.

**MANITOWOC COUNTY RADIO AMATEURS**  
First Wednesday - 7:00 p.m. - City Hall, 817 Franklin St., Manitowoc.  
Second Wednesday - Red Cross Building, 1816 Washington St., Manitowoc.

**MENOMONEE FALLS AMATEUR RADIO CLUB**  
Last Tuesday - Doors open 7:30 p.m., meeting begins 8:00 p.m. - Security Savings and Loan, Menomonee Falls. Amateurs and guests welcome.

**MILWAUKEE RADIO AMATEURS CLUB**  
Fourth Thursday - Wauwatosa Savings and Loan, 7500 W. State St. (November on the third Thursday. No meetings in July, August and December.) Meetings begin at 7:00 pm.

**OZAUKEE RADIO CLUB**  
Second Wednesday - 7:30 p.m. - Saukville Community Center.

**QCWA - SOUTHEAST WISCONSIN CHAPTER #162**  
Meets third Monday monthly, 7:30 p.m., Around the Clock Restaurant, 3012 Rapids Drive, Racine.

**RACINE MEGACYCLE CLUB**  
Second Tuesday, 7:30 p.m., Red Cross Bldg., 4521 Taylor Ave., Racine, WI

**RIVERLAND AMATEUR RADIO CLUB**  
First Tuesday - 7:30 p.m. - Onalaska Community Center, Onalaska WI.

**ROCK RIVER RADIO CLUB**  
First Tuesday - 8:00 p.m. - Dodge County Sheriff's Dep't, 141 N. Main, Juneau WI.

**SHEBOYGAN COUNTY AMATEUR RADIO CLUB**  
Second Tuesday - 7:00 p.m. - Sheboygan Red Cross/Boy Scout Bldg., 2032 Erie Ave.

**SOUTH MILWAUKEE AMATEUR RADIO CLUB**  
First Wednesday - Legion Post 434, Shepard Ave., Oak Creek WI. Auctions in March and October.

**TRI-COUNTY AMATEUR RADIO CLUB**  
Meetings are held at 7:00 p.m., the second Sunday of each month at the Trinity Lutheran Church, 314 Barrie, Fort Atkinson, WI.

**WEST ALLIS RADIO AMATEURS CLUB**  
Second Tuesday - 8:00 p.m. - St. Francis Savings, 9330 W. Greenfield Ave.

**WISCONSIN VALLEY RADIO ASSOCIATION (WAUSAU)**  
First Tuesday - 7:30 p.m. - Location varies; info on 146.04/64, Wausau.

**YELLOW THUNDER AMATEUR RADIO CLUB (BARABOO)**  
Days rotate: 1988 meeting dates: Wed., Jul. 13, Thu., Aug 11, Mon., Sep. 19, Tue., Oct. 11, Wed., Nov. 16, Thu., Dec. 15. Monday meetings in room 28D of the Baraboo Civic Center; all others in room 25. Meetings start 7:30 p.m.

Let Badger State Smoke Signals know your club's meeting dates, and we will let our readers know of your meetings and activities. There may be Amateurs in your area interested in joining your club, or members of other interested in making an interclub visit.

=====

**MASHED GOUGHPTHTEIGHTTEAU**  
If "gh" stands for "p" as on "hiccough"; "ough" for "q" as in "dough"; "phth" for "t" as in "Phthisis"; "eigh" for "a" as in "neighbor"; "tte" for "t" as in "gazette" and "eau" for "o" as in "beau", the correct spelling of "potato" must be "ghoughputheightteeau."

--ARNS--

# The TEST POINT



The following are known locations where Amateur Radio license examinations are scheduled in the Badger State area.

July 8, 1988	Eau Claire, WI
July 9, 1988	South Milwaukee, WI (BE)
July 9, 1988	Eau Claire, WI
July 16, 1988	Robbinsdale, MN
July 23, 1988	Menomonee, WI
August 11, 1988	Milwaukee, WI (MRAC)
August 13, 1988	Green Bay, WI
August 13, 1988	Rhineland, WI
August 14, 1988	St. Cloud, MN
September 10, 1988	Appleton, WI
September 10, 1988	Bloomington, MN
September 17, 1988	Milwaukee, WI (BE)
September 17, 1988	St. Paul, MN
September 24, 1988	Wisconsin Rapids, WI
October 9, 1988	Bloomington, MN
October 15, 1988	Milwaukee, WI (BE)
October 15, 1988	Eau Claire, WI
October 15, 1988	Minneapolis, MN
November 12, 1988	Menomonee, WI
November 12, 1988	Rhineland, WI
November 12, 1988	Bloomington, MN
November 19, 1988	Milwaukee, WI (BE)
December 3, 1988	Stevens Point, WI
December 10, 1988	Appleton, WI
December 10, 1988	Bloomington, MN
December 17, 1988	Milwaukee, WI (BE)
December 17, 1988	St. Paul, MN
March 18, 1989	Menomonee, WI
June 17, 1989	Menomonee, WI
November 11, 1989	Menomonee, WI
Monthly, First Sat.	Racine, WI
Monthly, Third Sat.	Loves Park, IL

## GENERAL RULES FOR MOST EXAMINATIONS:

Be sure to check with sponsors in the event there are changes and/or errors in the dates or information given.

Most examinations require filing an FCC Form 610 and advance registration at least 30 days before the exam date. (Some VECs permit walk-ins. Check with sponsor.)

To register, you must first secure a copy of the current FCC Form 610 and fill it out completely (AND CORRECTLY). Get your form from an FCC Field Office, the ARRL or Badger State Smoke Signals. Send a 25¢ SASE if you request one from the ARRL or BSSS. In most cases, forms can also be obtained from the sponsoring group.

ARRL/VEC examinations require a check for \$4.55 payable to "ARRL/VEC".

The FCC now requires applicants to show their original Amateur license to the VEC. A copy of your license must be attached to your FCC form 610. You will also be required to have a photo ID, or other acceptable identification.

Technician class licensees must show proof of testing before March 21, 1987, in order to upgrade to General with a code test only.

Additional information is given below.

## MILWAUKEE METRO AREA TEST TEAM - MRAC/VEC (MRAC)

Tests are given at 9:00 AM in room 256, Wauwatosa East High School at 74th and Milwaukee Ave. Use the east (74th St.) entrance.

Bring your original license and 3 good photocopies, a pen, and \$4.55 for the exam fee. Walk-ins accommodated if time permits.

Register in advance on a Postal Service 14 cent postcard; print the grade of license you are applying for, your name, address, and telephone number. Send to: The Milwaukee Radio Amateurs' Club, Inc., N50 W16328 Pin Oak Court, Menomonee Falls WI 53051.

## BADGER EXAMINERS (BE) - MILWAUKEE

July 9, (South Milwaukee Swapfest, 9:30 a.m.)  
September 17, October 15, November 19, & December 17

Unless otherwise noted, examinations are administered beginning at 1:00 p.m. at St. Nicholas Parish, 5353 N. Green Bay Ave. (2 1/2 blocks south of Silver Spring), Milwaukee. Number for coin telephone at exam location is 228-9994. Walk-ins are welcome. Bring your original license, a good photocopy of it, and a second form of identification. Technician license holders must bring proof of having been tested prior to March 21, 1987 to upgrade to General with code test only. To register in advance, send a post card with your name, test or tests you wish to take, date you wish to be tested, your call sign, address and telephone number to Badger Examiners, Mickey Dolgin, KB9G, 507 E. Spooner Rd., Fox Point, WI 53217. (414) 351-5311.

## FOX CITIES AMATEUR RADIO CLUB VOLUNTEER EXAMINERS

Examinations will be given in several locations, as follows:

July 23, 1988 - Bay Area Medical Center, Menomonee, Michigan, 9:00 a.m. until noon.

August 13, 1988 - Community Service Center, Green Bay Swapfest, Green Bay, Wis., 8:00 a.m. until noon.

September 10 and December 10, 1988 - Roosevelt Junior High School, Appleton, Wis., 9:00 a.m. until noon. Walk-ins are always welcome. For more information, contact Larry Siebers, KD9IA, 7077 Weyers Rd., Freedom, Wis. 54131, or call (414) 788-3823.

## STEVENS POINT, Wisconsin

December 3, 1988

By Central Wisconsin Radio Amateurs, Ltd.  
Contact Joseph W. Larson, N9JW, 644 Portage St., Stevens Point, WI 54481. (715) 344-1182.

## WISCONSIN RAPIDS, WI - ARRL/VEC

September 24, 1988

Contact Eugene R. Santoski, K9UTQ, 1220 18th Street South, Wisconsin Rapids, WI 54494. (715) 423-6368.

## EAU CLAIRE, WI - W5YI/VEC

9:00 A.M. to Noon, except July 8, 1988, 6:00 P.M. to 9:00 P.M. Exams are given at the University of Wisconsin Facilities Management Building in Eau Claire, except that the July exams are given in conjunction with the Eau Claire Amateur Radio Hamfest. There is no pre-registration requirement. Contact: Carl Searing, W9NW, 1129 McKinley Road, Eau Claire, WI 54703. (715) 834-1303.

## MENOMONIE, WI

Credit Union Office Building, Conference Room, lower level, 444 S. Broadway, Menomonee, WI. Contact: Dr. Thomas W. King, KD9TT, c/o office, 444 S. Broadway, Suite 1, Menomonee, WI 54751. (715) 235-4747 (O), 235-5757 (H).

## RHINELANDER, WISCONSIN

August 13, 1988 (Rhineland Swapfest)

November 12, 1988.

All except August will be held at Nicolet College Science Center in the Fireside Room starting at 9:00 a.m. All sessions held at Nicolet College will be by appointment only. Registration required thirty days in advance of testing session, with check payable to "DeVry VEC" for \$4.55. Only Technician class and above will be given at the testing sessions.

August 13th testing session will be conducted at the Rhineland Swapfest, corner of Chippewa Dr. and Co. Hwy. CC in the Rhineland Ice Association Ice Arena. Walk-ins will be accepted at the swapfest. Registration on the hour from 9:00 a.m. till 12:00 noon.

Novice tests will be given by appointment at any time except at regular scheduled testing sessions.

Contact: Leonard Bauman St., K9RMN, 1312 Dorothy St., Rhineland, WI 54501. (715) 369-3296.

## RACINE, WISCONSIN - ARRL/VEC

First Saturday of each month except during summer and the Christmas holidays.

Exams are given at the Red Cross Building, 4521 Taylor Ave., Racine, WI. Walk-ins are permitted.

Send pre-registration to: William R. Firchow, Jr., N9DMP, 1912 27th Street, Kenosha WI 53140.

## Third Saturday of every month.

Northern Illinois Volunteer Examiners (DeVry VEC). Held at North Suburban Library on North Second Street in Loves(Park, IL. Contact: Gene Melton, AK9N, 2901 Billie Rd., Rockford, IL 61109, (815) 874-6867

## MINNESOTA TESTS

July 16 - Robbinsdale  
August 14 - St. Cloud  
September 10 - Bloomington  
September 17 - St. Paul  
October 9 - Bloomington  
October 15 - Minneapolis  
November 12 - Bloomington  
December 10 - Bloomington  
December 17 - St. Paul

To register for these tests, or for more information, contact as follows:

Robbinsdale Amateur Radio Club

Ron Schultz at (612) 920-7473

St. Cloud Amateur Radio Club

Len Carlson at (612) 252-0783

Amateur Radio Association of Bloomington

Art Putt at (612) 881-7181

St. Paul Radio Club, Inc.

Mary Ketzler at (612) 426-4438

Minneapolis Amateur Radio Club

Jeff Kolb at (612) 699-6961.

Minnesota test information courtesy of Marv Mahre, W0MGI.

This section of Badger State Smoke Signals is available to publicize your Volunteer Examiner Amateur Radio license examination schedules.

Please send us your schedules of dates, times, and locations that you will be conducting examinations and we will include the information here. Be sure to include contact address and any other necessary requirements. Information should be sent to K9EN or K9ZZ at the address on page 2.

# Wisconsin Nets Association Ltd.

## WISCONSIN NETS

NET	WNA	FREQ	UTC	CDT	MANAGER
BWN	YES	3984	1100Z	0600	WD9IID
BEN	YES	3985	1700Z	1200	KA9RII
WSBN	YES	3985	2230Z	1730	K9EP
WNN	YES	3723	2300Z	1800	KA9TTM
WSSN	YES	3645	2330Z	1830	N9BDL
WIN-E	YES	3662	0000Z	1900	WB9ICH
WIN-L	YES	3662	0300Z	2200	W9NGP
NWTN	YES	34/94	2330Z	1830	NS9Q
GR.BAY	NO	72/12	0145Z	2045	WB9NRK
			THU.	WED.	

RACES NO 3993.5 1715Z 1215 WC9AAG  
USB TUE. & THUR.  
RACES NO 3993.5 1300Z 0800 WA9OAY  
LSB SUN.

## Section Manager's notes

MAY 1988

Richard R. Regent, K9GDF  
5003 South 26th Street  
Milwaukee, WI 53221

Congratulations to Riverland ARC for renewing their status as a Special Service Club

Net Net Manager of Badger Weather Net is KC9CJ, former NM WD9IID moved to Springfield, Illinois, after receiving a job promotion with GTE.

New ATC and OBS is NB9H.

Get a copy of the new "ARRL Convention and Hamfest Planner" and see several pictures of me and tips I wrote on staffing an ARRL booth. Also, check out the new "ARRL Special Events Communications Manual" article on Operation Santa Claus, which describes one of Milwaukee's ARES activities.

The Experimental Aircraft Association Show in Oshkosh lasts until August 5th, be sure to visit the ham shack.

August 13th, Green Bay Mike and Key Club Swapfest, Community Service Center on Dousman Street, open 7 a.m., with exams available.

August 13th, Rhinelander Swapfest, sponsored by the Northwoods ARC, Gigantic Rhinelander Ice Arena, open for setup at 8 a.m., with exams in morning.

NB9C says, "Field Day is a reflection of all that is Amateur Radio. It is a diverse combination of a contest, test of our emergency communications ability, social event, time to try new and novel things, opportunity for publicity, having a nice time, and more."

KA9JDE is updating the Dodge County Hams Roster and is looking for additions and corrections.

Affiliated Club Coordinator, KA9FOZ, can send you free information about Special Service Club programs or ARRL Affiliated Club benefits.

Check with Official Observer Coordinator, NC9G, about becoming an Official Observer and an Auxiliary Monitoring Station.

Sorry to report Silent Keys W9EQ and W9SQJ. Bell's Theorem: When a body is immersed in water, the telephone rings.

CAN MAY 1988 X 644 MESSAGES 31 SESSIONS X WISCONSIN REPRESENTED 100% X WISCONSIN STATIONS KA9RII W9ODV W9IEM X 73 - BILL WB5YDD ACTING MANAGER

9TH REGION REPORT MAY 1988 X 248 MESSAGES IN 62 SESSIONS WISCONSIN REPRESENTED 90 PERCENT X KA9RII W9CBE W9IEM W9ODV KC9CJ WB9ICH KA9KLZ KA9VII W9KLN W9RG X 73 - DAN NN9M

CYCLE 4 9TH REGION REPORT MAY 1988 QNI 316 QTC 366 QTR 821 IN 62 SESSIONS WISCONSIN PARTICIPATION 81% BY W9CBE W9CXY K9GDF W9KLN K9UTQ W9UW W9YCV 73 - W9JUG PEGGY NET MANAGER.

## Universal Traffic Queries

Gene Santoski, K9UTQ  
Section Traffic Manager  
Wisconsin Section ARRL  
1220 18th St. So.  
Wisconsin Rapids, WI 54494

Last month, we covered all the parts of a preamble in a standard message.

### WHAT IS THE NEXT MESSAGE PART?

Well, the next "main" part of a message is the ADDRESS. The ADDRESS is to whom the message is to be delivered and includes the full name, streetnumber/name, city, state and zip code. If at all possible, it should also include a telephone number.

In addresses where EAST, WEST, NORTH and SOUTH are part of the address, be sure to SPELL OUT the directions in full. Suffixes such as TH, RD or ST are not acceptable.

It is of utmost importance that all spellings and numbers be accurate in the address to insure delivery with minimum of prolems and to eliminate the need for servicing the message back because of an incomplete address.

### WHAT ABOUT THE TEXT - WHAT CAN IT CONTAIN AND HOW LONG SHOULD IT BE?

The text is the very reason that the message is being sent in the first place. It might be an acknowledgement of receipt of a letter or package, congratulatory, birthday or anniversary greetings, request for assistance or supplies etc. If the originator had nothing to say, the message would have never been created. So, to put it another way, the TEXT is the essence of traffic handling.

The TEXT consists of the words in the body of a message. No abbreviations should be substituted for the words in the text (except for ARL Numbers-which will be discussed later). The word count (CHECK) should be kept to a maximum of 25 or 30 if at all possible.

### WHO SIGNS THE MESSAGE?

The SIGNATURE, which is the last part of a standard message contains the name(s) of the person(s) who sent the message to the addressee.

Again, it is very important that all spellings be correct in the signature.

### WHAT ARE THESE ARL NUMBERS THAT YOU MENTIONED EARLIER?

Well, simply put, ARL NUMBERS are "canned" phrases or sentences and are used in the TEXT of a message to shorten the number of words in the TEXT. The ARRL has a listing of these messages in the OPERATING MANUAL, LOGBOOK, and NET DIRECTORY among other places. A copy of a complete listing of ARL Texts can be obtained from me for an SASE. If an ARL text is used in a message, the CHECK in the preamble is preceded by the letter group ARL to indicate that ARL text is being used in the message. The letter group "ARL" also precedes the actual text number in the body of the message. Also the numeric indicator(s) of the ARL texts are always spelled out in the text - ie ARL SEVENTY THREE or ARL FIFTY. By doing it this way there should be no question as to what "canned" text is to be placed in the body of the message. Incidentally, more than one ARL TEXT can be used in a message - just be sure that "ARL" precedes each number designator.

### HOW DO YOU COUNT THE NUMBER OF WORDS IN THE TEXT WHEN USING ARL NUMBERED MESSAGES?

Very simple. Each "ARL" and each numeric indicator are counted as one. As an example, ARL FIFTY ARL SIXTY ONE would count as "5" in the text. It is counted just the same way as though you were using plain words. The CHECK of the above message would be ARL 5.

### HOW DO YOU DELIVER A MESSAGE CONTAINING ARL TEXTS?

Very easy. You just refer to the ARL TEXT LISTING (CD-3) and simply read the "canned" text(s) in the order given in the message.

As you can realize, a quite lengthy message can be compiled by utilizing ARL TEXT with plain text in a message and still keeping the word count to 25 or less.

One important thing to remember is that BEFORE you send a message containing ARL TEXT, make certain that the other operator is familiar with such texts and has a listing of them. If you are operating in an ARRL NTS net, this usually can be taken for granted. If the receiving operator knows nothing about ARL TEXTS, send the whole converted text and forget about ARL numbering.

### HOW ARE WORDS COUNTED IN THE TEXT OF A MESSAGE?

First of all, I want to point out the fact that the relaying operator has no authority whatsoever to change the check of a message unless it is definitely determined that the check as he received it is incorrect, then he should confirm with the transmitting station before making the change. When a change is made, the original check remains in the preamble followed by a slantbar and the revised check. The check is a means of insuring accuracy and completeness of your copy.

All numbers, ciphers, mixed groups and punctuation each count as one in the check, regardless of length. It is recommended that  
(continued on page 19)



## West Allis, the Spice of Ham Life

By Richard R. Regent, K9GDF  
5003 South 26th Street  
Milwaukee, WI 53221

One fine day in 1954, a few Radio Amateurs in West Allis got together to incorporate into a club. Then for years they worked hard to develop snappy programs, fun activities, and long range goals. Today, 43 Amateurs excel in dozens of pursuits and are known as the thriving West Allis Radio Amateur Club (WARAC).

Among the many activities sponsored by the West Allis group is the Wisconsin QSO Party, which is famous world-wide for its operating challenges and keen competition. Club members promote the contest and especially encourage Wisconsin Hams to get on the air from nearly all 72 counties during the seven-hour contest period on the third Sunday in March. Over 100 logs are checked each year, and awards are presented to top scoring entrants from Wisconsin and many other states. Incidentally, the Club treasury pays for QSO Party printing, mailing, and awards.

The nationally known Kumershek Scholarship sponsored by the WARAC, in memorial to Silent Key member Emil Kumershek, W9WYF, will grant two \$700 scholarships this year to meet the club's altruistic goals. Next year's plans already include offering two \$500 scholarships.

The giant WARAC Swapfest is handled quite smoothly by the group in January at the Waukesha Exposition Center. Four hundred tables inside three buildings are loaded by sellers with amateur radio equipment and parts for 1,300 visitors to view, swap, or buy. Amateur exams are given and various special meetings are held. The club also provides a table for the ARRL booth near the food area. Les, the Club President, says, "I like the brats, hot dogs, sauerkraut, and also the free doughnuts and coffee that is served in the early morning."

Two Central Division Conventions held in Wisconsin were sponsored and coordinated by the WARAC group, one in 1976 and another in 1979 that had Roy Neal, K6DUE, as a guest speaker.

Elections are held in October, with current officers: President Les Peterson, W9YCV; Vice President Carl Mueller, NF9P; Secretary Ron Gorski, N9AU; and Treasurer Dave Knaus, WA9POV, Milwaukee.

Much of the credit for maintaining high club morale goes to their ability to work with people and to plan activities.

You can get the schedule of WARAC activities through their newsletter Hamtrix, listening to their 145.17 MHz repeater W9FK, or attending any of the well publicized meetings, held the 2nd Tuesday of the month, 8:00 p.m., at St. Francis Savings and Loan, 9330 W. Greenfield Avenue. The officers, plus additional board members Ray Hoffman, WB9JYR; David Engelmann, WB9GZP; Ralph Tramm, WD9AYD,



Here, at a WARAC Board of Directors meeting, are, left to right: club president Les Peterson, W9YCV; directors Dave Engelmann, WB9GZP, and Marianne Crown, KA9KFU; secretary Ron Gorski, N9AU; board chairman and treasurer Dave Knaus, WA9POV; director Ralph Tramm, WD9AYD; and past president Ray Hoffman, WB9JYR. Not present for the photo were vice-president Carl Mueller, NF9P, and director John Zach, K9IAC. Photo by Les Peterson, W9YCV.

John Zach, K9IAC; and Marianne Crown, KA9KFU, get together the 4th Tuesday of each month for a productive board meeting.

Can you imagine more club social gatherings than one a year? Well, first the WARAC always has an Award Dinner, where they honor the Ham of the Year, and just had a successful 30-plus year party. Next, there's plenty of interest about volunteering for the Western Days Parade this year on June 16. Then, the WARAC will hold a Campout August 5 through 7 in Fond du Lac County Park near Waupun so families and Hams can get together.

Besides these club sponsored social trips, the group enjoys Field Day. At the former grounds of the Highway 100 Theatre in Franklin, several WARAC tents, trailers, and antennas with radios are set up to operate the event and demonstrate Ham Radio capabilities to visitors. It is rumored that in the evening, when it's dark and there aren't too many mosquitoes, members show slides of past Field Day merriment on the big screen.

West Allis, Greenfield, Greendale, New Berlin, and Hales Corners librarians are delighted that their Amateur Radio shelves are stocked with the latest books - donated by the WARAC. Lately, the club also gave the libraries some Ham Radio videos. As a result, several students are taking Amateur Radio instructions from three

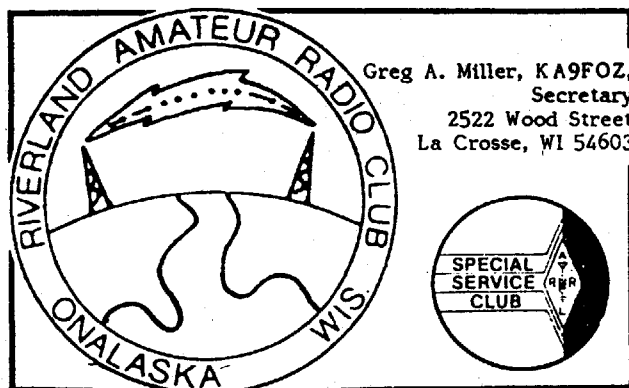
Elmers of the club. A few club members are thinking about rejuvenating the Veteran's Hospital interest in Amateur Radio with gifts of Handbooks and Tune in the World books.

Even members who can't make the meetings are never forgotten. The Sunshine Committee sends a card to the sick or delivers plants, flowers, club news or Ham books to the shut-ins to help them keep in touch.

The Program Committee, Dave Engelmann, WB9GZP, gathers delightful and thought provoking programs for the meetings like packet radio, robots, static electricity, and DXing. Other parts of the meeting can be fascinating too, for example, when someone reports on the possibilities for a new club jacket and thoroughly describes and shows five different styles. He specifies, "Sponge or dry cleanable, the jackets can have your name and call printed and the club logo on the back." As the features are quickly discussed, members ponder a moment and scrutinize the new cuffs, collars, and styles.

Then they look at their old comfortable colorful gold jackets with the earth globe and lightning-bolt logo. In certain ways, those WARAC jackets symbolize the club's activities: they cover many important areas, provide comforting warmth, and yet include an occasional zip or snap. And they'll be good for many more years to come.





### IN MEMORIAM

#### K9PBE — SILENT KEY

It is with great sorrow that we inform you of the passing of our club member Ray Severson, K9PBE. Our sympathy goes out to Ray's family.

On June 7, 1988, the 7:40 p.m., the regular monthly meeting of the Riverland Amateur Radio Club was called to order by President Craig Goldbeck. Minutes of the May meeting were approved as read from the Badger State Smoke Signals. The treasurer's report was approved.

#### 37/97 COMMITTEE REPORT

Van, WA9FIO, handed out a list of repeater manufacturers with models and prices. He gave a brief description of each; this started several questions from the members, which Van tried to answer. There was a discussion as to which repeater should be purchased and how we could raise the remaining amount. Van gave his recommendation and told us why. Further discussion will take place at future meetings.

As long as he had the floor, he went right into the plans for the picnic at his cottage on French Island. Pancakes, eggs, etc. will be furnished by Van; start time will be 7:00 a.m. on Sat. the 11th of June. Van is requesting help with cooking and clean-up. A donation will be accepted, with the proceeds going to the Repeater Fund.

#### MALL DISPLAY REPORT

Due to a conflict as to where we are allowed to set up at the mall, we are unable to route a feedline to any outside antenna. This prompted a discussion of possible cancellation of our club participating. It was decided to go ahead with a display of packet radio, as well as receive-only HF. Volunteers are needed for manning the display table. Several handouts from the League have been received for that day. Again, be reminded that this display is the same week-end as Field Day, so volunteers for both are needed.

#### FIELD DAY REPORT

An HF rig and a packet station are still needed for Field Day, as well as volunteers. We will be going for top honors in

the 3A class again this year. It is the same location as last year, which is the Jostad Farm above West Salem. The committee requested \$100 to be allotted to Field Day expenses; this was made a motion and passed.

#### OLD BUSINESS

A gift of a 3 foot by 3 foot banner was unveiled and presented to our Club; this was given by Greg, KA9FOZ. The banner was made by Cory Miller, sister-in-law of Greg. On the banner is the club logo in full color.

#### NEW BUSINESS

The issue of liability insurance was brought up and a letter on the subject was read by Craig, which was received from the League. This type of insurance would run our Club \$250.00 per year. This started a general discussion on insurance. More information must be gathered for future meetings.

Reordering of Club patches and possibly Club pins will be looked into and discussed at a later meeting.

It was discussed whether or not we should pursue a larger location and expand our annual Swapfest. A motion was made that we pursue the renting of the Logan High Gym for the 2nd Saturday in September. The motion was passed. Work will be done on this and a report made at the July meeting.

Winner of the June drawing was Charlie Ferries, W9TCW.

Total members present was 21.

Meeting was adjourned at 8:35 p.m.

Respectfully submitted:

Greg A. Miller, Sec.-Treas. RARC

#### ADDITIONAL NOTES

A special thank you is being extended to Cory Miller for making the beautiful club banner. This will be something the club will cherish for many years to come.

Great job, Cory!!

Sorry for the failure to show the video tape of the South Pole - I will take full responsibility, as I forgot to bring the recorder. I admit my mind was not with it that night.

#### THE PRESIDENT'S GAVEL

Thanks to Van, WA9FIO, for throwing a terrific breakfast picnic; fun was had by all lucky enough to attend.

With the club deciding to sponsor a larger hamfest, we will be needing people to help out with setup, takedown, ticket taking, and other duties. We have two and a half months to prepare for this event, but with the proper participation we can make it a successful event. It is tentatively going to be located at Logan High

School's Field House; watch for further details. It was decided at the June meeting that it would be a combined Amateur Radio, computer, and RC modeler event called an Electronics Fair. This and the 37/97 repeater replacement are just a couple of important issues facing our club in the coming months. The only way that you can express your views is to show up and let your voice be heard.

Our program for the July meeting will be a Hospitality Night, with the Winona and Tomah area clubs invited to attend. Also, if you have any projects that you've assembled and want to show it off, bring it along. Hope you all can make it.

73 'til next month,

Craig

#### COMING EVENTS

\* A club meeting held at the La Crosse County Courthouse basement with a tour of the county's 911 EDC to follow the meeting.

\* The Electronics Fair about the second Saturday in September.

#### MEMBERS PRESENT

Al Reinholz	N9FZE
Rick Williams	KV9U
Karl L. Olberg	W4ST
Craig Goldbeck	N9ETD
Greg Miller	KA9FOZ
Gary Countryman	KD9RL
George Kroner	KA9HOP
Dick Low	KØJYB
Les Jenks	W9AKY
Charlie Ferris	W9TCW
Mike Tessmer	NØBSH
Art Osborn	WØJDC
Duane Fruechte	W9HWQ
Arly Boone	N9HBQ
Charlie Burch	KA9UUK
Herman Ludvik	W9HJV
Bill Winder	K9EGQ
Ron Reed	KD9OY
Bill Wood	WB9VYI
Van Elston	WA9FIO
Jim Burcum	K9LBX
Jay Grokowsky (Guest)	N9CIQ

(The agenda for the July 1988 Riverland Amateur Radio Club meeting is on page 12.)

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## Fox Cities Club Sponsors Special EAA Station

The Fox Cities Amateur Radio Club will again sponsor a special event station at the annual Experimental Aircraft Association Fly-In and Convention, scheduled to begin July 30, 1988, at Wittman Field in Oshkosh, Wisconsin.

The FCARC is based in Appleton, Wisconsin, and has operated the special event station at the EAA convention for the past three years.

This station will operate using the club's call, W9ZL, and plans to operate on or near 14.293 and 7.243 MHz. They will operate on other bands as conditions and operators permit.

Special certificates will be issued for working W9ZL during the EAA convention. QSL to K9DHR, 264 Evergreen Dr., Kaukauna, WI 54130. Send either a large SASE, or \$1.00 and the club will supply the envelope.

- David P. Boland, W9NWX  
Secretary, FCARC

## Briefs

THE PEAK OF THE NEXT SOLAR CYCLE may be as early as late 1988, and may possibly be the most intense cycle ever measured. According to Dr. Patrick McIntosh, Director of Solar Physics at NO-AA's Space Environment Lab in Colorado, solar activity level could reach normal maximum by late summer, if current trends continue; earlier predictions suggested that 1992 be the maximum. Predicting solar activity is risky, and he cautions that the rapidly increasing levels could flatten out.

DR. TONY ENGLAND, WØRE, has announced his retirement from NASA, according to AMSAT's Amateur Satellite Report. He will join the faculty of the University of Michigan in Ann Arbor as a Professor of Electrical Engineering. He operated 2-meter FM and Slow Scan TV from the orbiter "Challenger" in July 1985.

ELECTIONS FOR ARRL DIRECTORS AND VICE DIRECTORS are coming soon. The League is soliciting nominations in several divisions, including ours (Central). If you know of a candidate, see QST, June 1988, for nomination information. (Part of the above excerpted from The ARRL Letter.)

## USED SATELLITE EQUIPMENT SALE

Laux actuator controller - MRC 2000  
Via-Sat VSI Antenna Controller  
(2) Drake - ESR 240 receiver  
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Amplifica down converter  
(2) Sat-Tec R5000 receivers  
Sat-Tec S5000 stereo processor  
Arunta Interceptor II receiver w/remote  
Anderson Scientific stereo processor SP710  
Luxor receiver 9430  
California Amplifier, Inc. 50db C Band LNA  
PICO 6' Antenna w/feed  
(Good) 2.7 - 4.2 GHz LNA - Locom  
(Bad) (2) 3.7 - 4.2 GHz LNA - Locom  
(2) Amplifica power supplies  
(2) Olympiad KLM down converters  
(Bad) Avantek  
(Bad) Tee-Comm 50db LNA  
(Bad) Amplifica LNA  
(Bad) Chaparral Block Down Converters  
(Good) Intersat LNA  
(Good) Hytec Amplifier, Inc. LNA

## Video Link Products

Model 142 XL Service 56 Channel Cable Converter  
(14) Model 100 Switches 4 inputs - 1 output  
(8) Model 106 remote switchers  
(5) Model 170 Xtra Links (parts missing)  
(18) Model 106WR Switches 4 input  
(8) Viditek distribution amp SDA-140  
(1) Viditek RF adapter/amplifier APT 86  
(11) Video Link By-Pass Kits  
(7) Tru-Spec Signal Combiner SC-1

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**- Behind Highland Mall**



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- COMMERCIAL EXHIBITORS
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**Talk-in on 147.84/.24**

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Street \_\_\_\_\_

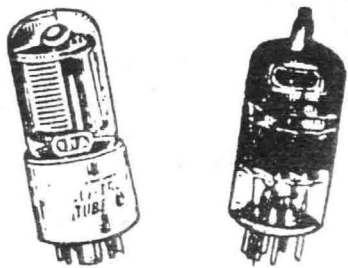
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

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Eau Claire, WI 54703

**All Advance Tickets Will be Held at the Door**



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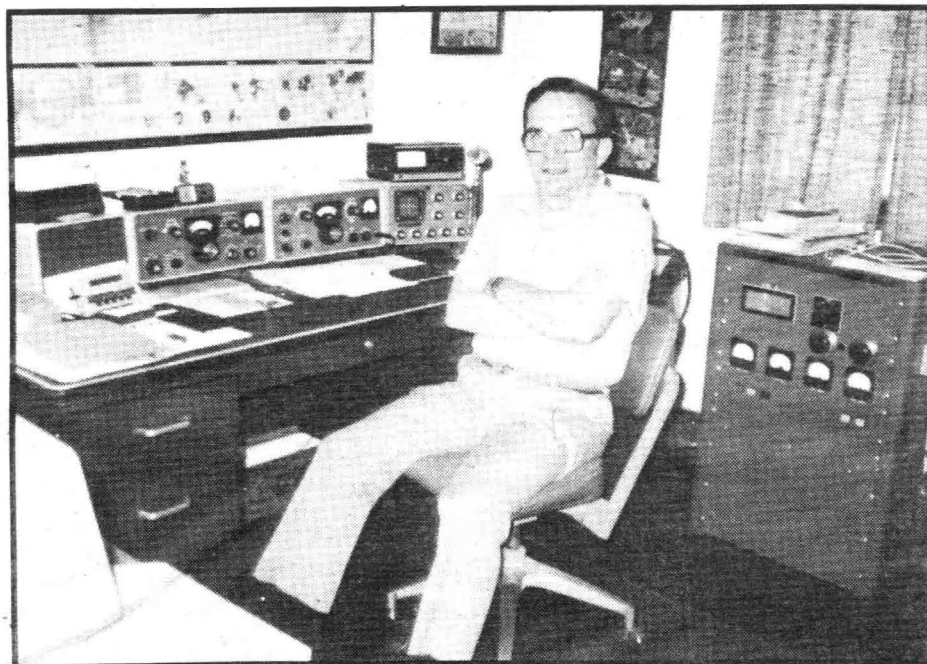
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## Introducing W9LA

Herb Jordan, W9LA, Madison, pictured at right, was first licensed July 25, 1950. He held a Class B license, which provided CW operation on all bands, and phone on 10 meters only (phone was not allowed on 40; there was no 15 meter band at all). He later qualified for his Class A license, which allowed phone operation on 20 and 75 meters. His first call sign was W9LAA; Herb dropped one 'a' when the FCC let Extra Class licensees choose call signs in the late 1970s. He is on the DXCC Honor Roll, with 334/333 countries, and has earned many other awards. Herb is a television engineer at WHA-TV (PBS), Madison.



# NINTH ANNUAL RHINELANDER SWAPFEST AUGUST 13, 1988

**RHINELANDER WI  
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ARES - TOMAHAWK REPEATER ASSOC.  
RHINELANDER REPEATER ASSOC.**

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Tables will be \$5.00 for a 4 X 8 foot table. Reserved tables will be available until July 30. You may set up on tables you bring without any charge just your ticket to get in.

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1312 Dorothy Street, Rhineland WI 54501 or Phone (715)  
369-3296.

HAM RADIO TESTING DeVRY VEC (AM ONLY)

AUCTION 1:00 PM

RHINELANDER REPEATER 146.34/146.94  
TOMAHAWK REPEATER 144.83/145.43

So come and Join the Fun!

PLEASE SEND FIELD DAY PHOTOS TO BSSS! We'd like to publish photos of your club or group's Field Day fun. Good, sharp color or black & white pictures are OK. Be sure you show people in your photos, not just equipment. Identify them by NAME and CALL, and give your operating location and call sign used. Please send photos to Badger State Smoke Signals, 412 1/2 Ash St., Baraboo, WI 53913. Thanks!!

### JOHN'S JUNK BOX, REPEATER PROFILES DISCONTINUED

Due to heavy personal and work pressure, John Frank, WB9TQG, has notified Badger State Smoke Signals that he will no longer be writing the popular features "John's Junk Box" and "Repeater Profiles." While we received little feedback here, we know that John did hear from a number of readers who enjoyed his articles, which were always interesting and informative. If any readers wish to drop a note to John thanking him for his hard work and diligence, his address is P.O. Box 5113, Madison, WI 53705. Readers in the Wausau area may be aware that John had begun an article on the Amateur television repeater there; however, the article will not be completed and will not appear. From the BSSS staff and our readers, thanks for your hard work, John!

"HOW IS MY SIGNAL NOW?  
I JUST GAINED A LITTLE ELEVATION"



## WA200BZW Makes 1602 Contacts in 79 Hours

To celebrate the 200th birthday of the Constitution of the United States, special call signs were authorized to certain stations by the Federal Communications Commission. The call signs all contained the digits "200," indicating their special, commemorative status. In Wisconsin, eight stations applied for and received the special call signs via the American Radio Relay League (a complete listing of all eight stations appeared in BSSS, May, 1988). These stations were authorized to operate for a one-week period, with that week dependent, in the case of the original 13 colonies, on the order in which they ratified the Constitution. The rest of the states have their one-week period nearest the date in which they entered the Union. Wisconsin's week was May 14-20.

One of the eight stations operating for a one-week period in May was WA200BZW, who is actually Al Hovey, WA9BZW, of Shawano. The station, located at Franklin Middle School in Shawano, made 1602 contacts in all 50 states (several times over) and 57 countries. Hundreds of letters have been received. 28 students and more than a dozen amateurs operated the station for 79 hours.

The special operation was covered in the Shawano Evening Leader four different times, and, in honor of the special station and the event it commemorated, Mayor Lee M. Schrader proclaimed the week of May 13 to 20, 1988, as Shawano Schools Radio Club Week. (See proclamation at right.)

A excellent press packet with information about Amateur Radio and about the special station, including the station's operating schedule, was prepared for the media. QSL cards for the operation were furnished by the City of Shawano.

Well done, Al and crew!

(From information supplied by Al Hovey, WA9BZW/WA200BZW)

### RIVERLAND AMATEUR RADIO CLUB — JULY AGENDA

- |                                |                                    |
|--------------------------------|------------------------------------|
| 1) Reading of the June minutes | d) Exam results                    |
|                                | e) Swapfest report                 |
| 2) Treasurer's report          | 4) Old Business                    |
| a) General fund                | a) Any old business from the floor |
| b) Repeater fund               |                                    |
| 3) Committee reports           | 5) New Business                    |
| a) 37/97                       | a) Any new business from the floor |
| b) Results of the mall display | b) Cash drawing                    |
| c) Results of Field Day        |                                    |

THE CITY OF SHAWANO  
OFFICE OF THE MAYOR  
CITY HALL  
213 E. Green Bay St. - Shawano, WI 54166

#### PROCLAMATION

WHEREAS, this month of May coincides with the Bi-Centennial of our Country and our Constitution as well as with the State of Wisconsin's entry into the Union, and

WHEREAS, Radio Amateurs of America realize that the Constitution "Commerce Clause" makes it possible to have one set of rules and standards for Radio Amateurs throughout the Nation, and

WHEREAS, the First Amendment of the Constitution makes possible the free use of Amateurs Radio's unique character to communicate world wide, and

WHEREAS, the Federal Communication Commission has granted the Shawano School Radio Club the privilege to use a special call sign, namely WA200BZW during the week starting 7:00 p.m. May 13 to 7:00 p.m. May 20, 1988. In as much as the Shawano Schools Radio Club is one of only eight in Wisconsin so honored with the right to use the special 200 call number for one week in May.

NOW, THEREFORE, I, Lee M. Schrader, by virtue of the authority vested in me as Mayor of the City of Shawano, do hereby proclaim the week of May 13 to May 20, 1988 as Shawano Schools Radio Club Week and urge recognition and support in all their endeavors.

Dated this 6th day of May, 1988.

*Lee M. Schrader*  
Lee M. Schrader, Mayor

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# **Eau Claire Amateur Radio Club**

Bob Fallis, W9BAR,  
Secretary  
1851 McKinley Road  
Eau Claire, WI 54703

The next meeting of the Eau Claire Amateur Radio Club will be held on July 12th at 7:30 p.m. in the Parks and Recreation Building, 1300 First Avenue, Eau Claire, WI.

## **MINUTES OF THE JUNE 14TH MEETING**

Vice president Mike McAlister, WD9-DLM, called the meeting to order at 7:30 p.m. Twenty nine members and three guests were present. The minutes of the May meeting, as published in BSSS, were read and approved.

The treasurer's report was read and approved.

## **OLD BUSINESS**

The 31/91 repeater is still not in good operating condition. Until further notice we will be using the 84/24 machine for the Sky-Warn Net.

Preparations for our July 9th Ham Fest are now under full swing. Steve, KD9YO, passed around a sign-up sheet for before, during and after the event. If you have not signed up as yet, call and see how you can help. Tickets are now available. Admission is two dollars in advance and three dollars at the door, so early purchase is encouraged. Flyers are still available. If you have an opportunity to help publicize the event, feel free to call Steve for some of them. License exams will be given in conjunction with the Hamfest. Walk-ins will be accepted. We can furnish the 610 forms.

Andy, KA9HWN, reported on the trailer. The committee has been meeting Tuesday nights at 7 p.m. at the trailer to work on it. They will need carpenters, electricians and plumbers before the project is done. If you would like to help, call Carl, Andy or Layne.

## **ANNOUNCEMENTS**

Jim Thomson, KD9XE, a long time member of the club, is a silent key.

The annual combined picnic of the Eau Claire Amateur Radio Club and the Northern Wisconsin Radio Club will be held August 21st. We have reserved the Pine pavilion at Carson Park in Eau Claire for the event. We eat at 1 p.m., so come early, have a good eyeball QSO and enjoy the food and fellowship.

We need ideas for programs for our regular meetings. If you have any ideas, call Mike or Jerry.

Lunch committee for July meeting: W9BAR, KB9KW, and KD9BM.

Meeting was adjourned at 8:20 p.m.

After refreshments, our program was presented by W0AIH. Paul gave a slide and talk program on his antenna farm, which is located southeast of Eau Claire. WOW! He showed pictures of towers and antennas that most of us can only dream of. Thanks, Paul.

Respectfully submitted:

Bob, W9BAR, Secretary

## **87-14 Update**

(Continued from front page)

links for amateur packet radio operations. These links must be situated at 220-222 MHz due to the bandwidth and path lengths required, the high occupancy of the 144-148 MHz band and the likely full utilization of 222-225 MHz by repeaters in major metropolitan areas in the future." DoD/NCS continued in some detail explaining the unique qualities of the 220 band and why, due mostly to propagation or shared use, the other amateur bands could not accommodate the 220-222 MHz amateur users.

DoD/NCS concluded that it needed the 216-225 MHz band for its radiolocation service, and that continuing this allocation is "crucial to the development of an Advanced Tactical Surveillance Radar and other radiolocation systems."

Perry Williams, W1UED, ARRL Washington Area Coordinator reminds us that these reply comments actually represent two agencies: the Department of Defense itself made the point that the military services had a continuing need for radar in the 216-225 MHz band beyond 1990 ending date for such use; did not believe it could share with a private Land Mobile service, but was content to continue sharing with the Amateur Service. The other agency involved in the paper was the National Communications System (NCS), a consortium of 23 government agencies which use communications services of all types -- radios, wirelines, satellites, or fiber optics; in normal times, times of natural disaster or in the event of enemy attack. The NCS is charged with National Security Emergency Preparedness; as such, it is known to amateurs as the operators of Night Tango exercises in the past. It is very interested in amateurs' burgeoning capability for large-scale message handling by packet radio, much of it done in the amateur 220-222 MHz subband which is under attack in the Docket (87-14). Thus, the NCS role in the Department of Defense filing is significant, and should be made known to radio amateurs.

(From The ARRL Letter, published by the American Radio Relay League)



Here are some short but newsworthy items: Congratulations to Richard R. Regent, K9GDF, on his semi-recent re-election as Section Manager for the Wisconsin Section of the American Radio Relay League. Rich has been a first-rate SM, and we're glad to know he will be our leader for another two years. Rich was unopposed in the election.

A large contingent of bicyclists will be riding through Wisconsin in early July, en route from Washington State to the East Coast. They are riding in a benefit for the American Lung Association, and this is the second year of the Transamerica Bike Trek. They will probably enter the state in the La Crosse area around July 1 or 2, and are scheduled to be in Baraboo on July 4. If the route is as last year, they should be in the Milwaukee area around July 6. Please make them welcome if they come through your area; they will be passing traffic on two meter FM to and from base support operators.

Frank Guth, W9BCC, says in the club newsletter of the Central Wisconsin Radio Amateurs in Stevens Point that he intends to resign from editing that newsletter this fall. Frank has been responsible for a newsletter that is consistently among the best I have seen, and he, as far as I know, is the only editor of an Amateur Radio paper in this state who has been editing longer than I have; he has somewhere around 25 years.

Ralph Anderson, K0NL, recently hung up his editor's hat; he edited the Amateur Radio News Service Bulletin for a lot of years; not only editing, but publishing, saddle stitching and mailing, not to mention typing it all, too. Andy also was responsible for a number of other excellent publications through the years. Well done, Andy, and thank you for your many, many years of dedicated service to all of us!

I guess editors are a sort of funny breed; once editing is in a human being's blood, it just doesn't go away. Maybe it's a kind of instinct or maybe it has something to do with the smell of printer's ink; it's hard to say, but something drives a lot of us editorial types to stay at it and stay at it, even in the face of adversity, budget constraints, long hours, obstacles of any sort. The point of focus is getting the paper out, and nothing had better stand in the way! The payoff, of course, is the finished paper, in which every editor takes pride, having overcome impossible hurdles to produce. I kind of suspect that I'm not the only editor who refers to every new issue as "The Monthly Miracle." But that primeval instinct is there in a lot of us, and it's impossible to fight it. Actually, I don't really try to fight it anymore; it just makes producing the next miracle harder. So, here you are, reading the latest miracle; stick around and you'll see another one in about 30 days.

# Westlink and the First Amendment

## HELP NEEDED

Through Westlink and - more recently - Westlink Report, for more than a dozen years, Bill Pasternak, WA6ITF, has kept U.S. amateurs abreast of late-breaking news vital to Amateur Radio's interests. Now Bill and his Westlink operation have been threatened by a lawsuit resulting from a news story he reported regarding a repeater coordination dispute in Southern California!

Bill's problems began when he reported on a conflict between the 220 Spectrum Management Association (220 SMA) - the group that has handled 220 MHz coordination in Southern California for many years - and a recently formed group that calls itself the 220 Frequency Coordination Commission (220 FCC), that also claimed to have substantial support from that area's 220 MHz community.

After allegations were made that harassment and other illegal actions might be related to the coordination dispute, the officers of the 220 SMA were sued for libel and slander by Daniel Granda, KA6-VHC, and Lewis De Payne, KA6RBJ, principals of the 220 FCC.

The suit - which includes Bill for having reported the story and also 100 yet-to-be-named "John Does" - was filed by attorney Jomarie De Payne and seeks punitive damages of \$5 million and actual damages of \$25,000.

It has been said that we in this country have "the best legal system money can

buy," and in no case does justice come cheap. Bill, who's financed his Westlink operation largely out of his own pocket all these years, is not a wealthy man. In fact, on-going health problems have sapped whatever cash reserves he's ever had. Now, because of his reporting of important Amateur Radio news of interest to us all, he's been slapped with a lawsuit that's already cost him over \$6,000 - \$6,000 that he's had to go out and borrow!

We fellow amateurs have long benefited from Bill's hard work and generosity, and now it's time for us to repay our debt to Bill. I have opened a bank account in the Glenview State Bank for the Westlink Legal Defense Fund, to collect money to help pay Bill's legal expenses and defend Amateur Radio's First Amendment rights! Contribute today with a check to the Westlink Legal Defense Fund and send it to me, Joe Schroeder, W9JUV, Box 406, Glenview, IL 60025.

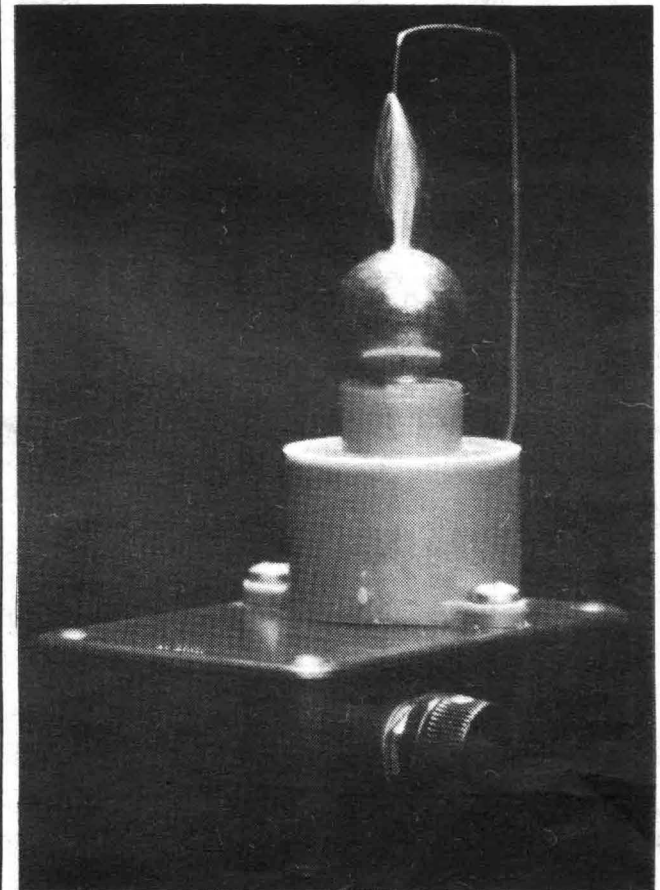
Help protect your investment in Amateur Radio by helping a fellow amateur who needs and deserves your help!

73,

Joe Schroeder, W9JUV  
Westlink Legal Defense Fund

(From Worldradio, July 1988. Editor's Note: Joe Schroeder, W9JUV, is the former editor of HR Report, which was published originally by Ham Radio Magazine. That publication is now The Westlink Report.)

## New Products



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Resonance Research Corporation announces the availability of the world's smallest Tesla coil. Measuring 3" long by 2" wide by 4" high, including base and secondary coil, and weighing just 3/4 pound, it is ideal for a desktop display. The coil produces 45 - 50 KV average output, producing 1 1/2" long sparks. Peak output potential is rated at 63.5 KV. Circuitry is solid state for long-term reliability, and the high energy discharge capacitor is SCR triggered for hot spark output. The coil will ignite neon, argon, or fluorescent tubes up to 20 feet in length. The pulse rate of the circuitry is continuously variable with a potentiometer. The coil operates from 120 V, 50/60 HZ, and draws 1.0 ampere. It is priced at \$69.95 (add \$3.50 for UPS shipping). Special discounts are available on quantity orders. Bank money orders or cashiers checks only are accepted. Make payable to D.C. Cox, Resonance Research Corporation, Rte. 1, Shady Lane Road, Baraboo, WI 53913. (608) 356-3647.

(RRC News Release)

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# OSCAR 13 in Orbit

AMSAT's Phase 3C satellite was launched to orbit Wednesday, June 15, together with two other communications satellites. The launch was letter perfect and all three payload satellites were precisely deposited in their proper orbits. Each will now maneuver on its own to its final orbit.

The launch aboard an Ariane-4 was the first flight for the new European entry into the heavy-weight launcher business. In its "maxie" configuration, Ariane 4 can carry more than 4200 kg to orbit.

Lofting into an azure sky over the Equatorial Atlantic at 11:19:04.33 UTC (7:19 AM EDT), the trajectory was perfect throughout. Twenty minutes later the first of the three satellites, Meteosat, was deployed. It was followed in close succession by Phase 3C and then by Panamsat (Pan American Satellite) "Simon Bolivar". Phase 3C became AMSAT OSCAR 13 upon ejection from its carrying structure at 12:39:04 UTC. Then, an hour and a half later, at 14:03:38 UTC, AMSAT OSCAR 13 sprang to life with the activation of its 2 meter General Beacon on 145.812 MHz. All measurements onboard indicated that OSCAR 13 was alive and well.

Telemetry is sent in three forms. The primary mode is digital data sent in a 400 baud, BPSK (Bi-Phase Shift Keyed) stream. This requires a special demodulator. (Such a demodulator is described in "Ham Radio" magazine for April, 1985.) On the hour and half hour, as a concession to tradition, 10 wpm CW reports are made. Then, at 15 and 45 min-

utes past each hour, RTTY messages using Baudot code at 50 baud, about 60 wpm, are sent. The BP-SK message contains the full telemetry suite and narrative messages as well. The birthday greeting in message QTC 001 was sent in five languages.

During the first week of life, AO-13 underwent several attitude changes and was spun up to about 45 rpm. These maneuvers prepared it for kick motor firing about a week ago. The on-board rocket boosted the 140 kg satellite to a more stable, usable orbit - one in a series of two or perhaps three motor firings spread over the first month.

AO-13 carries 4 transponders ranging in frequency from 145 to 2400 MHz. Two of the transponders are broadband, linear repeaters; one is suitable for FM only; one is a type of Digipeater optimized for AO13 use. Details of these transponders can be found in several current descriptive articles in the Amateur Radio print media. Among these are articles in the current (June 88) QST and May "73" magazines. AO-13 will be available for general use in sometime in late July. An operating schedule will be announced soon. The beacon frequencies are:


Mode B: GB: 145.812 MHz EB: 145.985 MHz  
Mode L: GB: 435.651 MHz EB: 435.677 MHz

For more information on getting started in satellites and on AMSAT membership, call AMSAT at 301-589-6062 or write: AMSAT P.O. Box 27, Washington, DC 20044.

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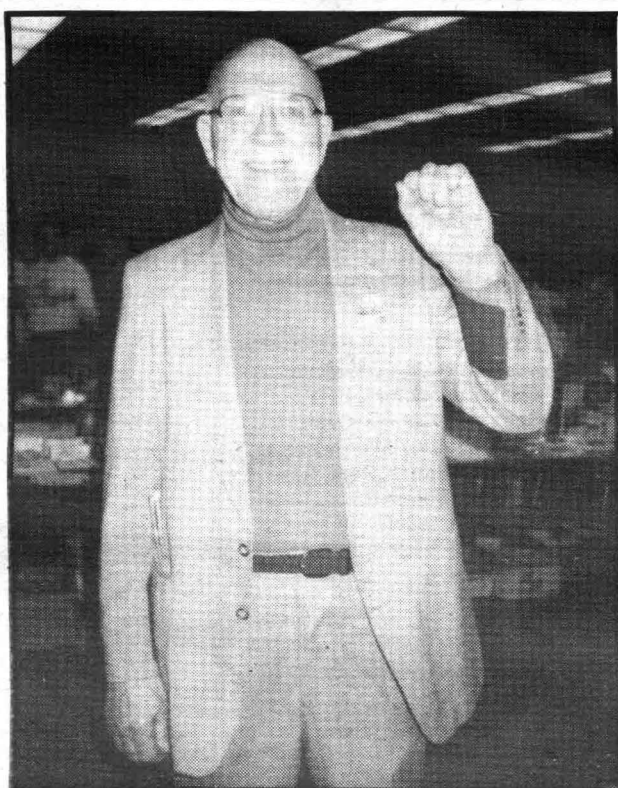
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WAVING HIS FAMOUS, FRIENDLY GREETING at left is C. C. Richelieu, W9JS, of Oregon, WI. Rich is the proprietor of "Banjos by Richelieu," a banjo manufacturing facility in Oregon; his banjos are known and respected worldwide for their extremely high quality. His banjos are all hand-made; no shortcuts are taken in their construction. Rich has been a Radio Amateur for probably more years than he cares to count, and, along the way, he served as Director for the Central Division of the American Radio Relay League. He is often found on the 2-meter repeaters en route to and from banjo-playing gigs around the midwest and elsewhere. This photo was taken at the Madison Swapfest in April by K9ZZ.

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## Have Robot, Will Packet

By Richard R. Regent, K9GDF  
5003 South 26th Street  
Milwaukee WI 53221

You've probably heard of packet radio and seen a robot, but have you ever watched a packet radio controlled robot? Everyone at a West Allis Amateur Radio Club meeting was excited to see this combination of Ham Radio and peculiar machinery as they turned their heads to get an unobstructed view of the evening's program.

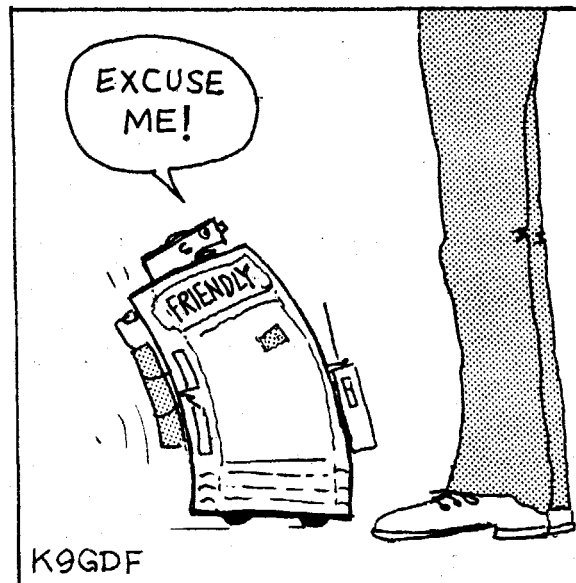
While the squeaking of moving chairs quiets, Warren Schall, K9IZV, begins his unique demonstration.

We see a table-top packet radio station, K9IZV-1, made up of a small computer, packet radio Terminal Node Controller (TNC), two-meter transceiver, antenna, and power supply. On the floor is a twenty-two inch high midget robot. A TNC is attached to its back with rubber bands, a handheld transceiver is clipped on its belly, a speaker is stuck on top, and paper nametags "Friendly" are taped to his sides. He's outfitted a bit like a few hams found at swapfests. Powered by four 6-volt batteries configured for various motor and electronic functions, Friendly the Robot, K9IZV-0, is virtually a packet radio mobile station.

Warren notes that the proper power-up sequence and boot-up procedure is important, "We'll have three lights on and then two go out." Little red lights on top of Friendly blink. "It took me a year to get him working and another six months to get him working right," Warren laments, as he adjusts the radio volume, connects the RS-232 connector on the robot's back, and confirms that the hardware is ready. Having the robot TNC set for transparent mode, the 1200-baud packet radio is unjammable and an ideal communications method to keep the robot under control.

By typing on the base station computer 'C(onnect) K9IZV-0', the radio connection is made, Friendly is ready. Alert, but motionless, the 1-1/2 year old robot stands on the floor as the breathlessly quiet audience stares with anticipation. Suddenly, he backs up a few feet and in a speech synthesized voice says, "Excuse me!" We're relieved to know that the communication link and circuits are functioning. Warren explains, "In the explore mode a random number generator gives the robot direction and distance parameters for turns and moves," then jokes, "Friendly has a mind of his own." Friendly replies, "Surely you jest!"

Now for some applications. Although a rather shy robot, he can count or respond to hand claps, and sense light or motion with an infrared detector; this would be useful as a security guard or an intruder alarm. His timing circuits are usable as an alarm clock, "Wake up. Good morning,"



alerts Friendly. With built in sonar, he can measure the distance to an object in his path; handy to check if people are in the way. "Oops, what's this doing here? Something's in the way," Friendly jabbars as he explores. He is useful for making novel announcements at swapfests, "CQ, this is Friendly," with an optional loud setting to get through the room noise. Friendly, like most good hams, shows up at swapfests occasionally and would be happy to detect your presence. He has a standing appointment at the "6.91 Friendly Fest" in Milwaukee each November. But he can't log or dupe yet, so you probably won't work him during Field Day. Friendly sings a stanza of "America the Beautiful" with melodic words and ends "... from sea to shining sea." The group chuckles as the entertaining robot holds their interest.

During the system debugging phase Warren systematically solved problems as they occurred: Loose side panels fell off, unwanted RF got into the speech circuits, and rebounding error messages would stack up. Still a problem, Friendly can't walk and talk at the same time. He can't even chew gum. Warren says, "He doesn't do windows either."

Most amazing, however, is that two-meter packet radio is being used to control the robot errorlessly. Nine commands in a row may be given with one transmission. The BASIC language program, which can be listed on a few pages, was written by Jeff Rockel, WB9FTB. Warren emphasizes that 15 new program steps, laboriously written the previous evening to give Friendly a reasonably safe explore mode, took three hours to write and debug.

For the Grand Finale, Friendly sings the song "Daisy," the same song chosen to test speech synthesis in its infancy, but Friendly synthesizes it with feeling, not just phonemes. Finally, the robot makes two complete turns and the group applauds Warren's terrific program - and also Friendly, who certainly worked hard. Members of the audience are encouraged to try the computer controls which command the robot.

As we all get closer and watch, shy Friendly slowly moves away, much farther than he ever did during the evening's program. He glides under a table, bumps into a table leg, and says in his little synthesized voice, "Crash!"

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## Morse Telegraph Club Happenings

The second annual on-the-air celebration of the anniversary of Samuel F.B. Morse's first telegraph message was held at the Mid-Continent Railroad Museum at North Freedom, Wisconsin, on May 28 and 29.

With propagation being as bad as it has been, most of our 65 contacts from AD9E were made on 40 meters, with a few on 20, 15 and 10. One contact on 15 meters was with OG1AO in Finland, our first DX.

We made contacts with 10 or more Morse Telegraph Club members; however, all told, we were 40 contacts short of last year's total. Besides poor propagation, we were quite badly QRMed by the Prefix Contest.

COMING EVENTS for the Morse Telegraph Club are:

(1) A dinner and a model train display at the Waunakee Railroad Museum on July 20, and,

(2) A Morse telegraph demonstration at North Freedom on Labor Day weekend.

- Bob King, KA9GNY

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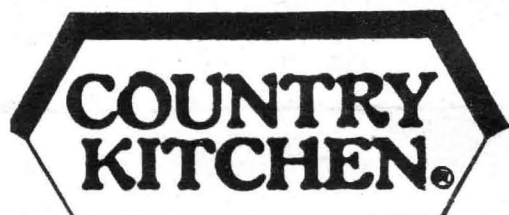


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## QSO Party Candids



ABOVE: When John Boos, NØBMP, operates mobile in the Wisconsin QSO Party, he does it right! Above is the trailer which John towed along during his fine effort which resulted in 21,351 points in the single operator-mobile category. On the trailer are five different mobile antennas and the generator which powered his kilowatt mobile. Photo by Mark Thompson, WB9QZB.

BELOW: Tony Burik, K9JWU, adjusts his antenna. Tony and crew tallied 10,400 points in multi operator-mobile. Photo courtesy of Dave Rece, NO9M. The official results of the 1988 Wisconsin QSO Party begin on the next page of this issue.



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# Official Results-Wisconsin QSO Party

THE 1988 WISCONSIN QSO PARTY WAS SPONSORED BY:  
THE WEST ALLIS RADIO AMATEUR CLUB, INC.  
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MILWAUKEE, WISCONSIN 53201

Another Wisconsin QSO Party is over, this one more exciting than the last. Entries were up only slightly over last year but there seemed to be more activity on the bands. Maybe some of you who operated but didn't send in your entry will see these results through the wide distribution of Badger State Smoke Signals and will consider entering next year.

The plaque for best Single Operator - Fixed station goes to long time Wisconsin QSO Party contestant Steve Dubberstein, NA9D. Impressive Single Op - Fixed performances were also turned in by the others in the "Top Ten", WB9SBD, W9XT, KB9S, N9AU, W9WAQ, NB9C, N9AW, WB9HRO/9 and NI9Z. The club standings changed quite a bit this year with the W/K ARC of Greater Milwaukee moving up from second to first place and, we are pleased to report, our own West Allis Radio Amateur Club finally moving out of the cellar. The club competition is as much a matter of friendly competition between members within each club as between clubs. Wisconsin clubs can and should use this event to spark activity within their memberships in a fun and rewarding operating event - one specially tailored to give Wisconsin Hams the most enjoyment in the briefest amount of time. Take advantage of it!

We would like to thank the many stations around the US and Canada who provided additional fun for Wisconsin stations and had a good time themselves. AC9C and AJ9C racked up impressive scores from neighboring Illinois and Indiana, respectively, and the contingent from Nittany ARC in Pennsylvania also added to the fun.

In checking and tallying the entries, the Wisconsin QSO Party Rules Committee found it necessary to adjust several scores, some up, some down. In fairness to all and so that we might learn from our own and other's mistakes, the adjustments made are contained in this publication.

See you all in '89,  
Wisconsin QSO Party Committee

## 1988 WISCONSIN QSO PARTY ADJUSTED ENTRIES

NOBMP/M9 39 CW Pts. corrected to 28 contacts; 234 SSB Pts. corrected to 245 contacts; score 21912 corrected to 21351.  
W9XT 450 SSB Pts. corrected to 449; score 62426 corrected to 62335.  
NA9D 170 CW contacts corrected to 169; 712 QSO Pts. corrected to 710; score 66716 corrected to 66530; score not included in club aggregate scoring due to operation outside 50 mile club radius.  
N9GUJ No entry form; score 580 corrected to 952.  
KA9SSI No entry form; score 1531 corrected to 1530.  
NX9R No entry form; score 3456 corrected to 4826.  
WB9HRO/9 Score not included in club aggregate scoring due to operation outside 50 mile club radius.  
KA9WXN Multipliers corrected to 2; score 5 corrected to 10.  
W9ODV Multipliers 26 corrected to 27; score 1066 corrected to 1107.  
NG9L QSO Pts. 293 corrected to 294; score 20217 corrected to 20286.  
AC9C 222 SSB Pts. corrected to 212; 406 QSO Pts. corrected to 396; score 20300 corrected to 19800.

## \*SOAPBOX\*SOAPBOX\*SOAPBOX\*SOAPBOX\*SOAPBOX\*SOAPBOX\*SOAPBOX\*SOAPBOX\*

A very enjoyable QSO Party. Nice to see so many CW stations active. I never got a chance to look at the SSB sections because of the great activity on the 7 and 3.5 CW bands. All it needed was a couple of mobiles to make it a 100% party. Now 84, I'm looking forward to next year's party. - VE3KK.

It was very enjoyable. I wish I had not taken time out from the contest to watch U of IL lose to Villanova. - WA9AXL.

My contest operation was halted by the arrival of 3 police cars responding to my neighbor's burglar alarm which was activated by my transmissions during my contact with WB9SBD. - N5AFV.

Thanks for a truly great contest! Wish I could have spent more time on the contest but you see, I married a woman from Jefferson County, WI 13 years ago to the day of the contest, and believe it or not, she wanted to spend time with me and go out for dinner! Look for me next year. I like the short contest period, it ensures more fairness and activity. Best QSO Party of the year! - NKOL.

Thanks for another fun Wis. QSO Party. Activity seemed to be down this year but was fun anyway. Had lots of interesting DX call us. Lots of G's for the Bermuda contest. Will see you again next year. - NS9E.

A great contest! Well worth taking the day off from work. - KA9QPH.

It was a lot of fun, but where were the other counties? - K9FHI.

The contest is about the right time length for me to enjoy trying to participate in the total length. I didn't like the people who deliberately put on a carrier to QRM me on 75m, but that is part of the contest. Overall I enjoyed it very much and hope to do better next time. - N9FVN.

Please note that this year I operated out of state in Illinois. I was pleasantly surprised at the level of activity of Wisconsin stations. The Wisconsin QSO Party is one of the best!! I am looking forward to another all out mobile effort next year. - AC9C.

Operation was portable from Lake Lucerne near Crandon. The cabin had no running water and a stove for heat. Dipoles at 20 feet on 40 & 80, vertical on 20. Did not work Forest County! - NA9D.

I worked 8 DX countries including KX6 and YJ8. I would have traded them all for Washington County - 3 miles east of here! - W9XT.

Thanks again for the great contest! It was nice of you guys to arrange for 20 & 40 meters to be so short - for those nice in-state contacts. - NOBMP/M.

## 1988 WISCONSIN QSO PARTY SUMMARY - WISCONSIN STATIONS

CALL	COUNTY	CLASS	QSO POINTS			FINAL		CLUB AFFILIATION
			CW	SSB	MULT	BONUS	SCORE	
-----								
MULTI OPERATOR - MOBILE								
K9JWU/M *	Dane	MM	0	180	30	5000	10400	Four Lakes ARC
SINGLE OPERATOR - MOBILE								
W9WI *	Dane	SM	300	77	55	5000	25735	Greater Rice Lake
NOBMP/M9		SM	56	245	51	6000	21351	
NA9M	Dane	SM	190	102	47	1500	15224	Four Lakes ARC
N9AAA	Dane	SM	0	126	31	3000	6906	Watertown ARC
KA9VOK	Waukesha	SM	0	106	43	1000	5558	Kettle Moraine ARC
NI9U	Waukesha	SM	42	74	26	2000	5016	Kettle Moraine ARC
N9HAL	Jefferson	SM	0	98	9	2500	3382	Watertown ARC
WA9POV	Milwaukee	SM	0	38	7	500	766	West Allis RAC
SINGLE OPERATOR - NOVICE								
KA9WXN *	Milwaukee	SN	0	5	2		10	
SINGLE OPERATOR - TECHNICIAN								
KA9TEP *	Milwaukee	ST	0	36	7		252	W/K ARC
MULTI OPERATOR - FIXED								
NS9E *	Eau Claire	MF	382	831	108		131004	Fall Creek Contest
KA9LOE	Brown	MF	140	280	83		34860	Green Bay Mike & Key
WD9ANY	Waukesha	MF	0	296	72		21312	West Allis RAC
N9DIH	Milwaukee	MF	120	189	66		20394	W/K ARC
NS9L	Dane	MF	144	40	52		9568	Four Lakes ARC
WA9AKV	Milwaukee	MF	0	18	9		162	
SINGLE OPERATOR - FIXED								
NA9D **	Forest	SF	338	372	93	500	66530	Greater Rice Lake (1)
WB9SBD *	Vernon	SF	388	312	95		66500	
W9XT *	Dodge	SF	236	449	91		62335	Kettle Moraine ARC
KB9S *	Pepin	SF	250	394	94		60536	Wabasha Area ARC
N9AU *	Milwaukee	SF	294	275	89		50641	West Allis RAC
W9WAQ *	Dodge	SF	288	287	85		48875	Watertown ARC
NB9C *	Dane	SF	352	259	78		47658	Four Lakes ARC
N9AW *	Milwaukee	SF	226	311	85		45645	W/K ARC
WB9HRO/9 *	Sawyer	SF	348	169	80	500	41860	Four Lakes ARC (1)
NI9Z *	Sheboygan	SF	390	141	75		39825	Sheboygan Cty. ARC
KC9NH	Winnebago	SF	0	347	111		38517	Fox Cities ARC
WA9BZW	Shawano	SF	0	416	92		38272	Shawano School Club
W9UP	LaCrosse	SF	0	366	84		30744	Riverland ARC
K9LGU	Calumet	SF	298	145	68		30124	Calumet ARES
W9RF	Sheboygan	SF	310	131	68		29988	Sheboygan Cty. ARC
WA1UJU	Waukesha	SF	204	201	73		29565	Kettle Moraine ARC
W9HE	Waukesha	SF	410	52	62		28644	



## 1988 WISCONSIN QSO PARTY SUMMARY - WISCONSIN STATIONS

## 1988 WISCONSIN QSO PARTY SUMMARY - USA/CANADA STATIONS

CALL	COUNTY	CLASS	QSO POINTS			BONUS	FINAL	CLUB AFFILIATION
			CW	SSB	MULT		SCORE	
SINGLE OPERATOR - FIXED (continued)								
KV9V	Sheboygan	SF	224	197	68		28628	Sheboygan Cty. ARC
AJ9U	Milwaukee	SF	160	214	70		26180	W/K ARC
AK9G	Milwaukee	SF	156	207	72		26136	W/K ARC
K9KR	Racine	SF	0	327	76		24852	West Allis RAC
K9DZG	Dane	SF	174	181	66		23430	Yellow Thunder ARC
WB9SQT	Waukesha	SF	0	300	78		23400	Watertown ARC
K9ZZ	Columbia	SF	200	105	75		22875	Yellow Thunder ARC
WB9MSM	Dodge	SF	216	124	65		22100	Watertown ARC
KQ9L	Green	SF	280	79	57		20463	Four Lakes ARC
NG9L	Waukesha	SF	112	182	69		20286	
KR9R	Sheboygan	SF	0	250	77		19250	Sheboygan Cty. ARC
K9IAC	Milwaukee	SF	0	281	67		18827	West Allis RAC
WA9TZE	Milwaukee	SF	222	61	66		18678	W/K ARC
K9WTF	Waukesha	SF	0	257	72		18504	West Allis RAC
N9FVN	Lafayette	SF	98	190	64		18432	
KE9HJ	Milwaukee	SF	30	230	68		17680	
WB9ZRE	Fond Du L	SF	0	249	71		17679	Green Fox ARC
K9VQP	Chippewa	SF	16	206	76		16872	Eau Claire ARC
K9GDF	Milwaukee	SF	150	131	58		16298	W/K ARC
N9EZ	Milwaukee	SF	310	0	51		15810	Kettle Moraine ARC
W9CBE	Dane	SF	208	57	51		13515	
K9OSC	Waukesha	SF	278	0	47		13066	
AE9K	Waukesha	SF	184	64	52		12896	W/K ARC
NU9P	Fond Du L	SF	210	31	48		11568	
K9BED	Milwaukee	SF	196	35	48		11088	W/K ARC
N9HR	Jefferson	SF	56	160	44	1000	10504	Watertown ARC
NC9G	Price	SF	50	132	48		8736	
WB9QFX	Winnebago	SF	22	112	56		7504	Fox Cities ARC
KE9C	Jefferson	SF	0	159	47		7473	Watertown ARC
NF9Q	Sheboygan	SF	94	71	38		6270	Sheboygan Cty. ARC
KA9HKL	Sauk	SF	104	65	33		5577	Yellow Thunder ARC
W9YCV	Milwaukee	SF	48	83	42		5502	West Allis RAC
K9JIG	Brown	SF	0	115	44		5060	Green Bay Mike & Key
WB9SAU	Calumet	SF	82	63	34		4930	
NX9R	Dane	SF	14	113	38		4826	Four Lakes ARC
KD9BC	Winnebago	SF	0	120	40		4800	Oshkosh ARC
W9HR	Kenosha	SF	142	0	33		4686	
WA9YVE	Jefferson	SF	0	116	40		4640	Watertown ARC
N9DIJ	Milwaukee	SF	0	103	45		4635	W/K ARC
WB9RNL	Columbia	SF	8	98	43		4558	Yellow Thunder ARC
KD9WQ	Winnebago	SF	0	101	45		4545	Oshkosh ARC
WA9KCU	Dodge	SF	0	119	37		4403	Watertown ARC
K9FHI	Dodge	SF	0	100	42		4200	Rock River RC
KA9QPH	Jefferson	SF	0	106	34		3604	Watertown ARC
N9CRD	Winnebago	SF	0	99	32		3168	Oshkosh ARC
WA9UJK	Milwaukee	SF	64	27	34		3094	Ozaukee ARC
K9EP	Rock	SF	36	55	33		3003	Beloit ARC
KB9W	Polk	SF	86	0	28		2408	
N9FZL	Outagamie	SF	0	80	28		2240	Green Bay Mike & Key
NX9H	Milwaukee	SF	0	72	27		1944	W/K ARC
K9DWS	Sheboygan	SF	0	61	31		1891	Sheboygan Cty. ARC
WA9BPG	Waukesha	SF	0	61	31		1891	Kettle Moraine ARC
WB9FMU	Dodge	SF	64	10	21		1554	Rock River RC
W9CHD	Waukesha	SF	62	0	25		1550	Milwaukee RAC
W9FJE	Milwaukee	SF	0	57	27		1539	West Allis RAC
KD9ZF	Manitowoc	SF	0	57	27		1539	
KA9SSI	Dane	SF	0	51	30		1530	Four Lakes ARC
KA9USV	Waukesha	SF	0	46	31		1426	Kettle Moraine ARC
NG9X	Milwaukee	SF	0	51	27		1377	West Allis RAC
KD9PE	Sheboygan	SF	0	45	27		1215	Sheboygan Cty. ARC
KA9BHL	Lincoln	SF	0	47	25		1175	Northwoods ARC
W9ODV	Sheboygan	SF	0	41	27		1107	Sheboygan Cty. ARC
N9GUJ	Dane	SF	0	34	28		952	Four Lakes ARC
N9FXI	Milwaukee	SF	4	8	5		60	W/K ARC
KA9VAM	Milwaukee	SF	0	6	6		36	West Allis RAC

\* Certificate

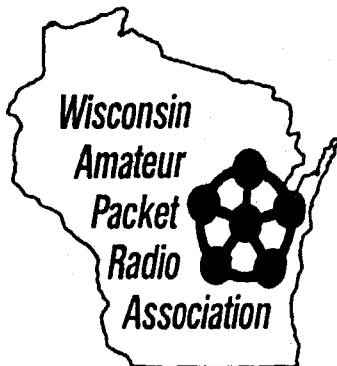
\*\* Plaque

(1) Not included in club aggregate scoring due to operation outside 50 mile club radius.

CALL	STATE	QSO POINTS			WIS.	FINAL SCORE	CLUB AFFILIATION
		CW	SSB	COUNTIES			
WR40 *	AL	0	12	11		132	
N6TO *	CA	0	9	7		63	
K3JL *	DE	118	41	31		4929	
K4GKD *	FL	66	28	20		1880	
K4GF	FL	20	58	22		1716	
WK4F	FL	0	9	8		72	
K4BAI *	GA	82	66	27		3996	Dixie DXers
AC9C *	IL	184	212	50		19800	
WA9LEY	IL	64	39	23		2369	
WA9AXL	IL	42	35	22		1694	
WD9EXD	IL	46	31	19		1463	
AJ9C *	IN	110	132	44		10648	
W9MFG/M *	IN	54	39	28		2604	
KBOG	IN	0	52	23		1196	
NDFMR *	KS	90	37	23		2921	
KB1VL *	MA	124	5	22		2838	
KA1CLV	MA	128	0	19		2432	
WA1TRE *	ME	36	31	21		1407	
W8YY *	MI	100	85	36		6660	Mich Tech Univ ARC
WB8ULZ	MI	84	14	20		1960	
NKOL *	MN	72	42	29		3306	
WONGB	MN	34	29	19		1197	
N9ARX/D *	NE	96	57	30		4590	
K1THG *	NH	2	37	19		741	
NJ2D *	NJ	132	36	31		5208	
WA2LBT	NJ	94	25	24		2856	
KB5DQ *	NM	0	10	6		60	
AE7K *	NV	28	0	10		280	
W2DUN *	NY	94	0	20		1880	
N2GZD	NY	0	48	21		1008	
W2WSS	NY	38	0	9		342	NOB ARC
W8EAO *	OH	42	0	14		588	North Coast ARC
VE3DAP *	ONT	136	13	25		3725	
VE3KK	ONT	110	0	21		2310	
W3HDH *	PA	154	52	28		5768	Nittany ARC
K3BIE	PA	52	22	21		1554	Nittany ARC
KA3NHF	PA	0	42	19		798	Nittany ARC
K3SO	PA	22	18	15		600	Nittany ARC
WA9AQE/3	PA	36	2	13		494	
KOERM *	SD	60	0	14		840	
N5AFV *	TX	6	14	14		280	
W5NR	TX	14	5	9		171	
KD7RX *	WY	0	24	16		384	
* CERTIFICATE							

## 1988 WISCONSIN QSO PARTY CLUB SUMMARY

PLACE	CLUB NAME	SCORE	
1988 (1987)		1988	(1987)
1	(2) W/K ARC OF GREATER MILWAUKEE	184206	(147041)
2	(13) WEST ALLIS RADIO AMATEUR CLUB	143356	(34767)
3	(6) WATERTOWN AMATEUR RADIO CLUB	135287	(82703)
4	FALL CREEK CONTEST CLUB	131004	
5	(3) SHEBOYGAN CO. AMATEUR RADIO CLUB	128174	(116934)
6	(1) KETTLE MORaine RADIO AMATEURS	121601	(293862)
7	(4) FOUR LAKES AMATEUR RADIO CLUB	110621	(97136)
8	(9) WABASHA AREA AMATEUR RADIO CLUB	60536	(61404)
9	(19) YELLOW THUNDER AMATEUR RADIO CLUB	56440	(8360)
10	(10) FOX CITIES AMATEUR RADIO CLUB	46021	(52028)
11	(11) GREEN BAY MIKE & KEY CLUB	42160	(44042)
12	(17) SHAWANO SCHOOLS CLUB	38272	(11515)
13	(12) RIVERLAND AMATEUR RADIO CLUB	30744	(43200)
14	(14) CALUMET ARES	30124	(32643)
15	(5) GREATER RICE LAKE CONTEST CLUB	25735	(90713)
16	(16) GREEN FOX AMATEUR RADIO CLUB	17679	(15808)
17	EAU CLAIRE AMATEUR RADIO CLUB	16872	
18	OSHKOSH AMATEUR RADIO CLUB	12513	
19	(21) ROCK RIVER RADIO CLUB	5754	(1887)
20	(15) OZAUKEE RADIO CLUB	3094	(21597)
21	(20) BELOIT AMATEUR RADIO CLUB	3003	(3200)
22	NORTHWOODS AMATEUR RADIO CLUB	1763	
23	MILWAUKEE RADIO AMATEURS CLUB	1550	



# THE WISCONSIN PACKETEER

Wisconsin Amateur Packet Radio Association (WAPR)  
P.O. Box 436 Cedarburg, Wisconsin 53012-0436

Steve Loeffler, WB9ZRE, Editor, 123 W. Oshkosh St., Ripon, WI 54971

## W9LZQ RELEASES BBS UTILITY SEARCH PROGRAM

Kent Helman - W9LZQ has recently released a utility program for IBM and clone computer Bulletin Board Systems operating WA7MBL software. The program is called OS SEARCH and provides users with an easy means to perform a complete database search of the bulletin board.

The program has been installed and tested at the W9LZQ-1 BBS in Onalaska, Wisconsin and now that Kent is confident that the program has been perfected, he is offering its use to all amateur MBL driven BBSs.

Users can use OS SEARCH to locate any information that may be contained in any file on the BBS. For instance, a request of OS SEARCH WAPR will return all information that the BBS has on the Wisconsin Amateur Packet Radio Association which includes the acronym WAPR. To locate any information that the BBS might have on a particular station, simply type OS SEARCH (callsign of the station). If that callsign is contained in the BBS, the file containing that callsign will be returned to the requestor.

Currently, W9LZQ-1 (La Crosse area) and WB9TYT (Milwaukee area) are using the utility with much success.

For more information, contact Kent - W9LZQ @ W9LZQ-1.

## NORTHERN ILLINOIS FREQUENCY CHANGES

Due to some recent re-alignments as suggested by "NIPRFC", here are a couple of frequency changes that might interest you.

The N9GTM-BBS has moved from 145.09 to 144.97 along with the W9LCK (VARA) wide area digipeater in Elgin, Illinois. KJ9L has also moved his primary port to 144.97 with a secondary (BBS only) port on 145.01.

N3AIA (BBS) and N3AIA digipeater (alias "AIA") will keep it's primary port on 145.05 for gateway operations. The secondary port has been moved to 145.07. This allows very effective interface of the area E.S.D.A.'s, in the case of an emergency and can easily reach NW9K via TIR.

## "GO-FAR" HOLE ACTIVE

Thanks to the combined efforts of many individuals, the Go-Far Hole (Often referred to as simply GH) is a reality - and working well. The GH is a dedicated commercial circuit which connects the Minneapolis and St. Paul Metro area with the University of Maryland area. On the MN end the Net/Rom node is known as #MNMD} KØMVL-1 and best access is through the Norwood N/R node (NWD} WØTN-2. The East Coast Net/Rom node is #MDMN} WØKIT-1.

We especially thank the following folks who have made this possible:

Bob - KØMVL      Doug - WØKIT  
Janet - KØJE      Dan - WBØGDB

Please note the following:

1. Improvements are anticipated in access to #MNMD from the Minnesota end. The antenna is inside at the present time and arrangements are currently being sought that will allow an outside antenna.

2. Individual station operators are asked to please be cautious when using the GH. The primary purpose is to help provide a part of the "national packet network backbone" necessary for handling messages throughout the country. Use of the GH to "DX" other stations or PBBS's is highly discouraged in light of concerns for keeping congestion to a minimum.

3. Traffic destined for areas outside of your immediate area should be entered at your nearest PBBS. The PBBS's will forward the traffic as appropriate. For the Minnesota node end of GH, the routing HUB is WAØCQG. Traffic from MN to the Network should be routed to WAØCQG and traffic to MN should be routed through W3IWI (in Maryland). These two stations are in constant contact via the GH and via 14.109 SKIPNET.

Carl - WAØCQG

## 10M FM 1200 PACKET TO JA

With the increase in solar activity, 10 meter FM packet is coming alive. I have been working Japanese remote bases on 29.010 Mhz. The Japanese remote bases come out on 430 and 1296 Mhz all through-out Japan.

Tom - WB7ASR

The latest information on Amateur Radio packet growth worldwide confirms that there are at least 230 countries now active!

## MFJ-1270B TNC 2 ASSEMBLY ERRORS

Another factory assembly error has been discovered. Some MFJ-1270B TNC's may have the calibration and TX audio gain controls, (R76 thru R79) mounted incorrectly. As a result these PC mounted controls will have to be adjusted in the reverse direction for proper operation. Counterclockwise becomes clockwise and C.W. becomes C.C.W. The problem was first noted on unit S/N 01010124. The adjustment screws in a properly assembled unit should be on the side of the control nearest the power off/on switch. If they aren't simply reverse the adjustment procedures with respect to C.C.W. and C.W.

BOB - NK8T

## TAPR-2 AND CLONE, RX IMPROVEMENTS

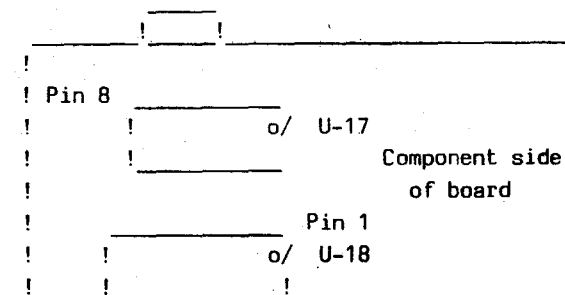
This modification can be made on the MFJ-1270, PAC-COMM TNC-2, etc. The MFJ-1 270B and MFJ-1274 do not use this active filter. (Some AEA PK-80 TNCs used soldered in chips and the possible value of this modification will have to be made before removing the mentioned parts).

The removal of the MF-10 chip and associated resistor network from TAPR-2 type TNC's can increase through put by reducing the ringing of MF-10 active filter. The addition of a .001 in it's place not only reduces low frequency noise problems such as A.C. HV lines, but also phase shifts the sine wave input to the XR-2211 decoder chip. This phase shift reduces the effect of distorted sine waves from improperly adjusted neighboring stations.

Remove parts from U-17 and U-18 as illustrated below

\*\*\*\*\*

## RADIO DIN CONNECTOR



\*\*\*\*\*

Install the .001 Capacitor between U17 Pin 8 and U18 Pin 1. A capacitor voltage value of 50 volts or greater will work, however, typical 1000 volt types have a lead thickness large enough to just plug into the IC sockets mentioned above - (No soldering).

BOB - NK8T

## MFJ 1270/74 ALIGNMENT NOTES

\*\*\*\*\*

## IMPORTANT NOTE FOR NETROM AND OTHER NETWORK USERS

You MUST remove the special network ROM chip and insert the original MFJ ROM and check that there is no connection to pin 23 of the RS-232 connector.

\*\*\*\*\*

The directions for calibrating the tones on an MFJ 1270/74 leave a lot to be desired. Here is what MFJ forgot to tell you:



The procedure is different for modulator (transmitted) tones than for demodulator (received) tones.

#### CPU Clock

Connect a frequency counter to pin 6 of U10 or loosely couple the antenna of a calibrated communication receiver to this same pin and adjust C47 for 4.9152 Mhz +/- 100 Hz. This adjustment is not critical for TNC operation but it is for accurate tone calibration.

The position of JP2 (CPU speed select) is irrelevant to the calibration procedure.

#### Modulator Tones

- 1) Install a jumper from pin 1 to pin 4 on JP9. These are the two pins on the six pin header nearest to C44.
- 2) Enter the CALSET number from the list below. "CALSET 439" for 1200 Hz.
- 3) Put SW 3 in the proper position. (HF or VHF)
- 4) Enter the calibrate mode by typing "CALIBRA"
- 5) Type "K" to key the TNC. (you should not have the transceiver connected)
- 6) Listen to the output audio to determine if the TNC is sending the high or low tone of the selected pair. Hit space bar to toggle high/low
- 7) Adjust the pot for that tone given in the list. NOTE: If the tone frequency is low the "CON" LED will be on. If the tone frequency is high the "STA" LED will be on. Both LEDs on or alternating between "CON" and "STA" tells you the tone frequency is close enough.
- 8) Type "Q" to quit the calibrate mode and repeat to step 2 for the next one to be calibrated. You should calibrate all four modulator tones, but you may wish to calibrate only the VHF or HF pair. Do both tones of a selected pair!
- 9) Remove the jumper on JP9 installed in step 1. This completes the modulator calibration.

tone	FREQ.	POT	CALSET #	SW 3 Pos
HF MARK	1600 Hz	R 106	329	IN
HF SPACE	1800 Hz	R 105	293	IN
VHF MARK	1200 Hz	R 78	439	OUT
VHF SPACE	2200 Hz	R 77	240	OUT

#### Demodulator Tones

- 1) Install a jumper between pin 2 and pin 5 on JP9. These are the two center pins in each row of the six pin header.
- 2) Enter "CALSET 155". DO NOT enter the CALIBRA!
- 3) Put SW 3 in the "VHF" (out) position.
- 4) Adjust R79 and watch the "CON" and "STA" LEDs. NOTE: The "CON" and "STA" LEDs react the same for demodulator tones as for modulator tones. (See step 7 above)
- 5) Since there is only one adjustment for the demodulator, remove the jumper installed in step one. This completes the demodulator calibration.

If you have any comments or questions regarding this tune up, send me a message.

--Keith, KA4R0S

If you have anything of interest to readers of this column, please submit it to:

Steve Loeffler - WB9ZRE, Editor

123 West Oshkosh Street

Ripon, Wisconsin 54971

via SLG, NFR, WA9SXN or N9BKJ - BBS

#### CALLING "CQ Field Day" WITH A NET/ROM

For those of you who are planning Field Day activities and have not included packet on your list, consider this:

A) Your packet contacts count two points each. (and we all know how many packet operators are out there).

B) You don't need a high powered station. Just enough power to hit the first DIGI or node.

C) Your packet station is a F R E E station as you don't have to count it as an extra transmitter. So every contact you make actually counts more than two points.

D) You can set up the connect message as your confirmation and report to the connecting station allowing you to operate hands free automatic operation!

The CQ command is used to broadcast a short text message from a node, and enable the user stations that receive the broadcast to connect to the station that originated the broadcast. The command is:

CQ [text message]

Where text message is optional and can be any string up to 77 characters long including blanks and punctuation. The CQ command cannot be abbreviated, since "C" is interpreted as a CONNECT command.

In response to a CQ command, the node broadcasts the specified message in "unproto" mode, using the callsign of the originating user (with translated SSID) as the source and "CQ" as the destination. The broadcast is made in the form of an AX.25 UI-Frame with a PID of F0 hex. For example, if a user station (K8TEF) connects to a node and issues the command:

CQ "Phil" in Republic, Ohio

The node transmits a broadcast that would be

Prejudice is a great time saver: It enables you to pass judgment without the necessity of getting the facts.

A few common computer terms:

ACCESS: To get into. "Honey, would you access the fridge and get me a beer?"

BOOT UP: To get organized and ready to function. "I just can't boot up in the morning until after I've had my coffee."

INTERFACE: To hook up with. "Let's all interface at the restaurant around 7."

monitored by local users (in the MON ON mode) as:

K8TEF-15>CQ: "Phil" in Republic, Ohio

(It will only make this broadcast once for each time the command is used).

After making the broadcast in response to the CQ command, the node "arms" a mechanism to permit other stations to reply to the CQ. A station wishing to reply may do so simply by connecting his TNC to the originating callsign shown in the broadcast (K8TEF-15 in the example above). A CQ command remains "armed" to accept replies for 10 minutes, or until the originating user issues another command to the node (CONNECT USERS IDENT or another CQ) or disconnects from the node.

Any station connected to a node in the command mode may determine if there are any other stations awaiting a reply to a CQ by issuing a USERS command. An "armed" CQ channel appears in the USERS display as (only in version 1.3 NETROMs):

(Circuit, Uplink) <--> CQ (usercall)

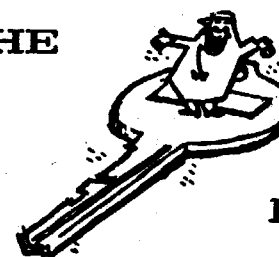
The station may reply to such a pending CQ by issuing a CONNECT to the user callsign specified in the CQ (...) portion of the USERS display - it is NOT necessary for the station to disconnect from the node and reconnect.

Phil - K8TEF

Editors note: While we realize that this item will reach most readers after Field Day 1988, we have included it for your future use.

Your contributions to Badger State Smoke Signals are welcomed. We would like to hear of your club meetings, swapfests and other activities. The Want Ads are free to non-commercial users and great results. I once asked for a parrot to sit by the rig and call CQ and got 3 Mcaws. --Ken, K9EN

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# Yellow Thunder Amateur Radio Club

**K9ODK  
WB9FDZ**

The June 14, 1988 meeting of the Yellow Thunder Amateur Radio Club was called to order at 7:45 p.m. by Duane Grotophorst, Vice-President.

The following members/guests were in attendance:

Brian Schell	KB9ANB	Baraboo	Member
Duane Grotophorst	KA9HKL	Loganville	Member
H. A. Reif	KA9YQP	Baraboo	Member
Art Kleefisch	W9WSS	Baraboo	Member
Dennis Sweeney		Portage	Guest
Ed Folland	N7FQG	Bend, OR	Guest
Joey Sweeney		Portage	Guest
Charles Clayton, Jr.		Baraboo	Guest
Harry Westlund	K9EHJ	Baraboo	Member
Jim Romelfanger	K9ZZ	Baraboo	Member
Jim Decker	WB9UQT	Baraboo	Member
Harry Mayland	K9FFT	Baraboo	Member

The minutes of the previous meeting were approved as published in the B.S.S.S.

The treasurer, Jim Decker, gave the financial report of the club as:

Operating balance: \$290.35  
Total balance: \$322.29

There were several guests in attendance, so a round of self-introduction by each seemed appropriate.

Jim Romelfanger read some of the results of the Wisconsin QSO Party. Complete results will be published in a forthcoming issue of the B.S.S.S.

Bulletins from the secretary consisted of distribution of the latest issue of the A.R.R.L. "Field Forum Bulletin" and a letter from A.R.R.L. offering club liability insurance.

With the guests in attendance there was much interest in Novice classes. Much discussion followed on this subject and hamming in general. One guest, Mr. Dennis Sweeney, made application for club membership and this will be voted upon at the July meeting.

Upon a motion by Art Kleefisch, and seconded by Harold Reif, the formal meeting was adjourned at 8:25 p.m.

Buck Nite drawing was won by Harry Mayland (K9FFT). This should pay for his usual sweet

roll at the Country Kitchen (a B.S.S.S. advertiser).

The balance of the evening was spent in planning for Field Day operations. Following is a general program drawn up by the Y.T.A.R.C. Think Tank:

1. OPERATION SITE: Owen Park on Owen Park Road in Columbia County.
2. ARRIVAL TIME: 11:00 a.m. (1600 UTC).
3. FOOD/DRINK: This is the responsibility of each individual.
4. SLEEPING: At the park or at home; your choice.
5. EQUIPMENT: One generator operating; one generator questionable. Crank up tower needs new cable and we hope to have it fixed.

We hope to operate several bands, not totally defined, depending on available antennas; also Novice and packet.

We don't expect to set any record scores, but do plan on having a lot of fun. If you don't want to operate, come out anyhow. You can always bring refreshments to justify your presence.

Respectfully submitted:

Harry Westlund, K9EHJ, Secretary

## YTARC BIRTHDAY

Charles Scholten W9BZU July 19

## SENTENCE SERMON

A thoughtful mind sees not the flag alone, but the nation itself, the principles, the truths, the history back of it.

--Henry Ward Beecher

## WNA - UNIVERSAL TRAFFIC QUERIES (continued from page 4)

punctuation not be used, but rather be spelled out when used in a message text to avoid confusion in checking. The letter "X" or "XRAY" (on phone) is used in place of a period and counted as ONE in the check.

Some examples of word counts are:

F.E. HANDY	3 words
NEW YORK CITY	3 words
ARL	1 word
6CL6G	1 word
FIFTY SIX	2 words

That's it for this one - CU next month on the nets - 73, Gene, K9UTQ



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FOR SALE: MFJ 1270-B HF/VHF TNC in excellent condition - \$85 firm. Drake-75 CW Electronic Keyer in mint condition - \$50 firm. Interested persons can contact Kurt Silber KB9MQ at 414-748-5911.

## KANTRONICS ANNOUNCES 2.84 FIRMWARE OPTION

Kantronics has announced version 2.84 firmware, which retains all features of previous updates, and adding new features for these units: KAM, KPC-4, KPC-1, KPC-2, and KPC-2400.

The major features are:

1. Battery backup for PBBS contents (B.B. "smart socket", 32K RAM 62256 are extra).
2. PBBS contents protected during soft reset (changing MAXUsers or NUMNodes will not erase PBBS, battery backup not required.)
3. Direct keyboard entry of messages into PBBS (limited only by RAM allocation to PBBS).
4. PBS subject field - user will be prompted for a subject for message.
5. Help available from PBBS and KA-Node (gives short description of how to use).
6. (J)Heard and (N)odes Heard enhanced - complete digipeater path listing of stations heard and Nodes Heard selectable by user.
7. KA-Node now recognizes NETROM (TM) network nodes in its Nodes Heard list.

All Kantronics customers who purchased a Kantronics TNC after March 1, 1988, are entitled to a free EPROM (v. 2.83). Customers must provide proof of purchase and request 2.83 when they mail in their warranty card.

Providing the model, firmware level, and RAM part number is necessary information. If battery backup of RAM is desired, the battery backup "smart socket" MUST BE USED WITH A 62256 STATIC RAM. We strongly suggest using a 32K RAM even if you don't plan to use the battery backup. Both of these are available at extra cost from the factory.

Cost varies with each unit, and with current version level of each unit. (Kantronics, 1202 E. 23 Street, Lawrence KS 66046.) (Kantronics news release)

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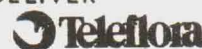
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